T-200+™
Printer Reference Guide

Text P/N 217857-1 Rev. D

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Revision History

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WARRANTY CLAIMS

United States

Encad, Inc., warrants its printers ("PRODUCT") to be free from defects in workmanship and materials for a period of one year from the date of purchase. In order to submit a Warranty claim, please contact the Encad Help Desk at (858) 452-4350.

Encad reserves the right to make changes or improvements to Products, without incurring any obligation to similarly alter Products previously purchased.

Buyer's sole and exclusive rights pursuant to this Warranty shall be for the repair or replacement of defective Product. Encad specifically disclaims any and all other warranties, expressed or implied, including but not limited to, implied warranties of merchantability and fitness for a particular purpose. In no event shall Encad be liable for any loss of profit or other commercial damages, special, incidental or consequential damages, or any other damages or claims, whatsoever.

This Warranty gives Buyer specific legal rights, and Buyer may also have other rights that vary from state to state.

This Warranty applies only to printers purchased from Encad, or authorized Encad dealers. The intent of this Warranty is to repair or replace defective Products subjected to normal wear and tear, when operated according to Encad instructions.

This warranty does not cover damage to the Product resulting from the following:

- **Accident or negligence.**
- **Unauthorized modification of the Product.**
- **Adverse environmental conditions.**
- **Service of the Product by other than an Encad authorized service provider.**
- **Unauthorized or improper use, including but not limited to:**
  - **Use in applications for which the Product was not designed.**
  - **Using cartridges, ink, or media other than Encad products.**
  - **Lubricating any part of the printer.**

Internationally: Contact your dealer for warranty information.

Extended Warranty: An extended warranty is available for your Encad printer. Contact your dealer or Encad for further details.

FCC Statement (U.S.A.)

The United States Federal Communications Commission has specified that the following notice be brought to the attention of users of the Encad printers.

FEDERAL COMMUNICATIONS COMMISSION RADIO AND TELEVISION INTERFERENCE FOR CLASS B DEVICE.

Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

User Instructions:

If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Encad, Inc. could void the user's authority to operate the equipment.

Note: This product was FCC certified under test conditions that included the use of shielded I/O cables and connectors between system components. To be in compliance with FCC regulations, the user must use shielded cables and connectors and install them properly.

VDE statement

Hiermit wird bescheinigt, daß der Drucker in Übereinstimmung mit den Bestimmungen der BMPT-AmstbIVfg 234/1991 funkentstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung.

Dem Zentralamt für Zulassungen im Fernmeldewesen würde den Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf die Einhaltung der Bestimmungen eingeräumt.

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet apparell numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

Material safety data sheet

To obtain information on the proper use, handling, and disposal of any Encad ink, consult the material safety data sheet included in the ink kit or obtain a copy from Encad, Inc. at:

6059 Cornerstone Court West
San Diego, California 92121-3734
(858) 452-4350

International users should contact their local dealer or distributors.

General operating safety

The use of a <HAR> cord set (rated 10A, 250VAC) with the proper plug configuration for the country where the device will be used, is required for continued safety compliance.

Ein harmonisiertes (<HAR>) Netzkabel (min. 10A, 250V~) mit dem vorgeschriebenen Netzstecker für das entsprechende Land in dem das Gerät installiert wird, ist unbedingt notwendig für die elektrische Sicherheit.

El uso de cable poder <marcado HAR> (capacidad de 10A, 250V~), con el enchufe apropiado para el país donde se use el producto, es requerido para acatamiento de seguridad eléctrica.

L' emploi d' un cordon surmoulé <HAR> (estimé 10A, 250V CA) avec la configuration de la fiche convenable pour le pays où l' appareil sera utilisé, est exigé pour la conformité à la sécurité continuée.

Manual conventions

Indicates a procedure for you to follow in order to perform a specific function. Read the accompanying explanatory text before following the step-by-step procedure.

! Indicates a warning. Ignoring the warning can damage the printer or result in an unsatisfactorily printed image.

✲ Indicates a tip or suggestion that can make using the printer easier or improve your printed images.

Other reference materials

In addition to this guide, the following additional documentation is included with your printer:

Quick Start Guide - Tells you how to attach the printer stand and basket, load media, install cartridges, and connect the printer to your computer.

CD-ROM - contains the following:

Documents

Quick Start Guide

Reference Guide

Maintenance Guide

Graphic Troubleshooting Guide

Applications and Utilities

EFPU

Windows 95/98/NT/2000/ME Drivers

HDI Driver

ADI Driver

ICC Color Profiles

Other

Customer Support Test Files

Demo Files

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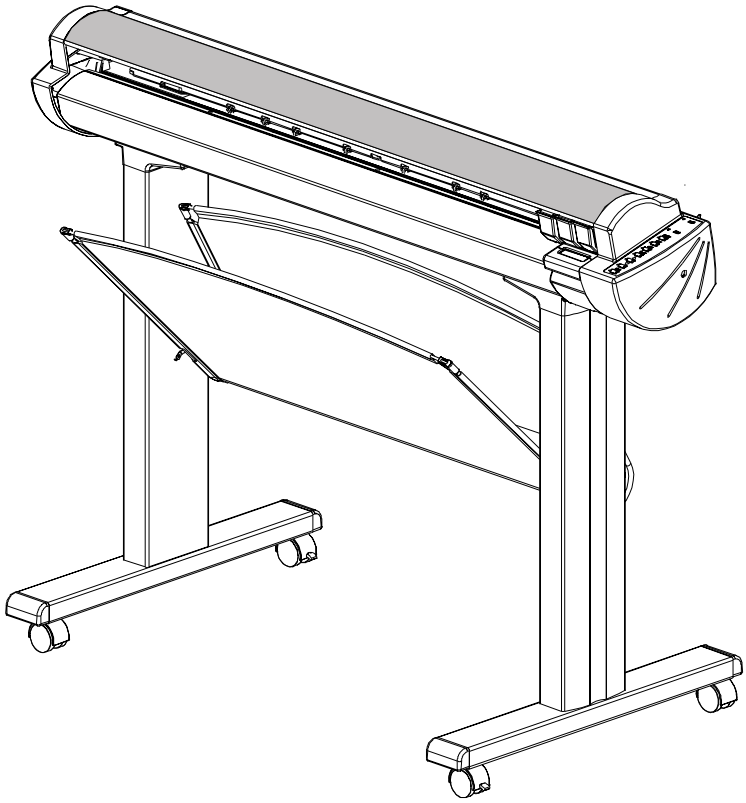
Printer setup 1

This Reference Guide describes the T-200 wide format inkjet printer. This chapter provides an overview of the printer and setup instructions.

The printer is a wide-format color inkjet printer that gives you professional-quality output with all the brilliance and gloss of liquid ink. For CAD, engineering, architectural, creative and business professionals, Encad printers let you experience the value of exceptional graphics quality and cut hours of production time, while giving you the dramatic impact of high fidelity images. While printing full color images is possible, the inks, media handling system, printer interfaces, and imaging electronics have all been designed to maximize line drawing performance.



Printing

Wide format inkjet printers let you create printed pieces the length of a roll of media (up to 150'). Only *Extreme Color Printing*™ combines the technical sophistication of the T-200 printer with the unique qualities of ENCAD CIS2 ink and media.

Your printer features thermal ink cartridges with 208 jets. Cartridges include an onboard ink tank (caddy) which supplies a minimum of 65 ml of ink beyond what is in the cartridge. You can print with four colors of ink (CMYK) which yield millions of colors, or four black cartridges (KKKK) for faster printing.

The printers accept raster-oriented data in the format of HP RTL or HPGL/2. In this mode, printing begins immediately after the first complete line of HP RTL data is received.

If your applications do not support HP RTL, there are several software utilities available to convert various raster file formats (TIFF, GIF, BMP, etc.) into HP RTL. There are also many Raster Image Processors (RIPs) which convert Postscript or CGM to HP RTL. When choosing a RIP or a file format converter for output to the printer, make sure it has the features you need. (Contact your Encad dealer for an up-to-date listing.)

Obtaining quality results

You have probably seen a demonstration of your printer's capabilities or sample output. If so, you are aware of the superb color graphics which can be obtained, and the variety of media you can use. Note, however, that to obtain high-quality results, you must consider several factors. Follow the simple guidelines in the sections that follow to obtain excellent results.

Use the right inks and media

Encad's commitment to Extreme Color encompasses media, ink, and cartridges. A team of color scientists and media specialists work with world class ink and media manufacturers to develop supplies that are scientifically matched to Encad printers. Used together, Encad inks and media provide wide color gamut, fast dry times and print longevity.

Encad inks and media give you optimal image quality through:

- Scientifically matched ink and media
- Bond, Mylar, Vellum and Premium Matte.

Caring for your ink, cartridges and caddies

- Handle cartridges only on the plastic areas. Touching the copper electrical interconnect or the inkjets can damage the cartridge.
- Do not mix inks.
- Do not shake ink containers.
- Store ink, cartridges and caddies in the same environment as the printer, whenever possible.
- If you remove a cartridge from the printer, do not leave it exposed to the air for an extended period because the jets may clog. Remove the Ink Caddy and replace the original tape on the jet plate. Place the cartridge in a cartridge garage or sealed plastic bag and store it in a closed area at room temperature. Keep it out of direct sunlight.
- Open new cartridges only when you are ready to install them.
- Use only Encad-brand ink refills and cartridges.
- Drawings containing both black and color elements require alignment of the cartridges to each other as described later in this chapter.

CAUTION: Ink caddies can be affected by large temperature swings. In uncontrolled environments, large temperature swings, ranging from 10° to 20°F (5.6° to 11.2°C), can cause small amounts of ink to drip from the cartridge. Caution should be exercised to control the environment to minimize temperature swings.

WARNING: Do not operate the printer when an ink caddy is out of ink. This could cause premature cartridge failure. Replace caddies when the ink level reaches the line printed on the caddy label.

Choose the right media

You can rely on Encad media for rich, vivid images across the entire color spectrum. Our media is specially formulated to demanding specifications, strict performance criteria, and uncompromising quality controls. This assures superb interaction with ENCAD CIS2 ink and flawless performance with the printer.

Caring for your media

Store media in its original packaging in a cool, dry area until you are ready to use it. The environment should be stable; i.e., no extremes of heat and cold, and non-condensing humidity. If conditions are outside the operating ranges recommended for the printer, allow the media to acclimate in the operating environment for at least 48 hours before using it.

If you remove a roll of media from the printer, be sure to store it in a manner which keeps it clean and dust-free. Ideally, you should return it to its original packaging for storage.

Print on the correct side! Roll media is wound with the coated side out. Cut sheet media has an ink-receptive and a non-ink-receptive side. The sheets are notched to help you orient them correctly. To assure that you print on the correct side, be sure that the notch is in the upper right corner when you feed the sheet into the printer.

Handle with care! Handle your media carefully to avoid creases, scrapes, and tears. Avoid crushing or damaging roll media edges.

Wear cotton gloves! Film-based and photographic paper-based media are susceptible to absorbing skin oils. Fingerprints on the media prior to printing may result in visible fingerprints after ink is applied.

Choose the correct printing mode

By choosing from a variety of color, quality, and resolution modes, you can make tradeoffs between drawing quality, colors, and speed. When printing heavier renderings, maps, or art graphics, choose one of the enhanced printing modes (Normal or Best).

Use the right software

The quality of the software driver or the RIP can be very important, especially when printing continuous tone images or 3D renderings. Error diffusion or stochastic screening algorithms can yield photo-like images, even when these images are scaled to full size. Software without advanced imaging features may produce images which are grainy when enlarged.

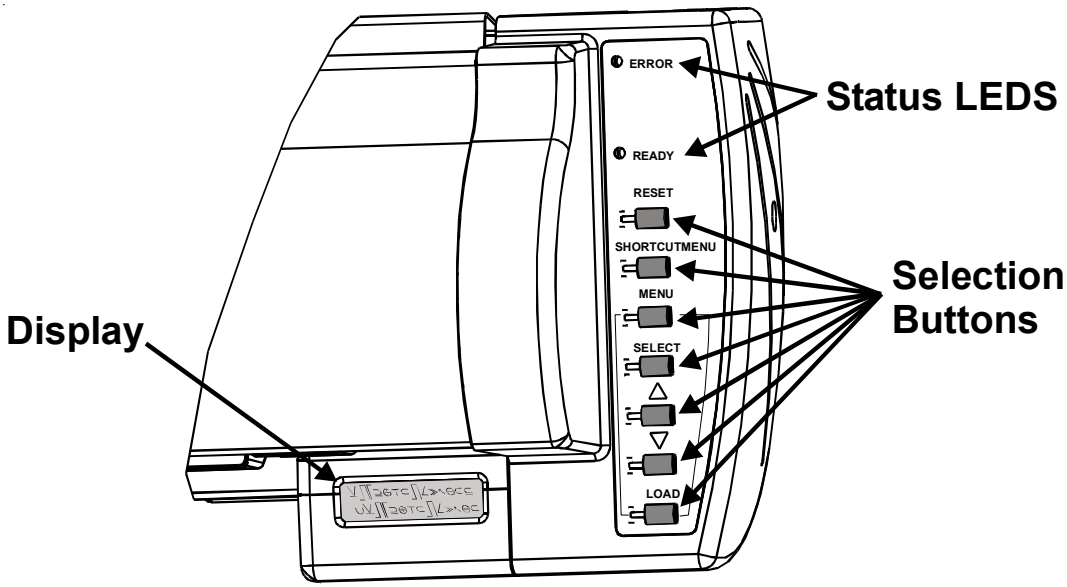
Getting started with your printer

This section gives you details on the following items that you need to do before using your printer:

- using the control panel
- installing the media cutter
- priming and aligning ink cartridges
- installing software.

Using the control panel

The control panel at the right side of the printer includes seven buttons, a display which indicates modes and settings, and two LEDs which indicate the printer's status. An overview is provided here. Details on menu options are included in chapters 2 through 4. The menu tree in Appendix B also gives you a summary of all the menu selections and their functions.



Two types of menus are displayed: action menus provide a list of additional menus or immediate tasks to perform, selection menus let you view and modify values.

The Shortcut button on the control panel lets you access frequently used functions including **Cut**, **Access Cartridge, Feed Media, Clean, Prime, Pause.**

Choosing menu functions

To select a function, press the Menu button, then press the Up and Down arrow buttons to scroll through the available options. Press the Select button to choose the displayed menu or option.

Depending on the type of menu, you can return to the previous menu level by pressing the Menu button. There is no way to immediately return to the top level menu.

Setting the language

With the appropriate firmware version, your printer can display menu items and messages in English, German, French, Italian, Portuguese, Spanish, and Japanese.

To choose a language

1 Press **Main Menu/Setup Menu/User Setup/Language=**.

2 Press **Select.**

3 Press the up or down arrow buttons until the desired language is displayed.

4 Press **Select**.

Defining the media supply type

Before loading media, you need to indicate the type of media being loaded. The available options are sheet and roll. Select sheet if you intend to use cut sheet stock. Select roll if you are going to use roll paper on the roll feeder. When you load media, the printer automatically detects its width. It also detects and indicates media out conditions.

To choose supply type

1 Choose **Setup Menu/Paper Options/Supply**.

2 Press the up or down arrow buttons until the desired supply type (sheet or roll) is displayed.

3 Press **Select**.

Loading media

You can use either roll or single sheet media. To ensure straight paper loading and avoid skewing, be sure to hold the media parallel to the platen. Use the load lines on the platen as a guide to correctly align the media. Set the media guides to the width of the media. Be sure to load roll media from the back only as shown in the Installation Sheet. Load cut sheets from the front of the printer.

! **IMPORTANT!** It is very important to use only Encad media with your printer. Some third party media has been found to generate electrostatic discharge in excess of 20 KV. Emissions of this level can cause arcing. These conditions can be temporary or permanent.

! If your roll media has wrinkled or damaged edges, cut off the damaged part of the roll prior to loading to prevent the media from jamming in the printer.

To load media

1 With media positioned at the back or front of the printer (depending on whether it is sheet or roll, press the Load button. The printer automatically moves the media into position for printing.

Feed media

To feed media

1 Press the Shortcut button, then press the up or down arrow until **Feed Media** displays.

2 Press **Select**.

3 Press the up or down arrow until the desired feed direction is displayed, then press **Select**.

Moving the carriage

When not in use, the ink cartridges rest in the service station at the right side of the printer. This device seals the inkjets to prevent them from drying out.

To move the carriage

1. With the power turned on, press the Shortcut button.
2. Press the up or down arrow button until **Access Cartridge** displays.
3. Press **Select**. This moves the carriage away from the service station so that you can install, change, adjust or clean the ink cartridges, change the cutter, or clean the service station. Do not move the carriage manually as you could damage the printer.
4. Press **Select** again to return the cartridges to the service station.

Installing the cutter

A cutter located in the ink cartridge carriage cuts roll media. The printer is shipped with the cutter installed.

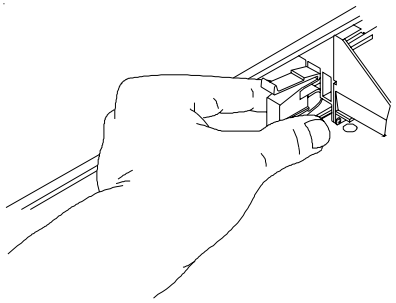
! **Be careful when handling the cutter to avoid injury.**

! **Cutting media with a worn cutter can cause the media to jam and create a ragged cut line. Replace the cutter to avoid this condition. Do not cut media on the printer with an external knife, as you could seriously damage the platen and void the warranty.**

To install the cutter

1. Press the **Shortcut** button.
2. Press the up or down arrow until **Access Cartridge** is displayed.
3. Press **Select**. The carriage will move out from the service station.

4 The cutter fits in the printer on the left side of the carriage. To remove an old cutter, push the cutter lever down and pull it out. Install the new cutter by pushing it into the slot until it clicks into place.



5 Repeat steps 1-3 to move the carriage back into the service station. This ensures that the cutter blade is in the home position.

Testing the cartridges

After the cartridges have been installed and media is loaded, run the following tests as described in the sections which follow: color test, prime pattern, cartridge alignment, and deadband test.

Printing the color test

Printing the color test verifies a proper manual prime and that pressure is set properly. It prints a solid band of each of the four colors.

To print the color test

1 Be sure media is loaded in the printer.

2 Choose **Utility Menu/Service Menu/Diag Menu/Color Test=100%**.

3 Press **Select** twice.

The test prints.

4 Verify that all bands print a solid pattern. This indicates that the cartridges were properly primed. If a solid pattern is not printed, run the color test again.

Printing the prime pattern

Before printing and during printing, the printer wipes the ink cartridge jets at the service station. This function is user selectable during printing. Wiping occurs automatically between prints. Still, ink cartridge jets can become clogged, especially with prolonged exposure to the air or with nonuse. Printing the Prime pattern helps to clear the jets and to check that the ink cartridges fire properly. It is recommended that you print the prime pattern daily to ensure the best possible print quality.

The printer includes a feature called Open Jet Compensation. This feature helps maintain optimal print quality and gives you the confidence to print long, unattended jobs. It is available in all modes. During multi-pass printing, the printer will automatically compensate for jets found to be electrically damaged. The only intervention needed is to verify that there are no clogged jets and then choose which print mode is most appropriate for your needs. This is done by printing the Prime test pattern and then setting the print mode accordingly.

To print the prime pattern

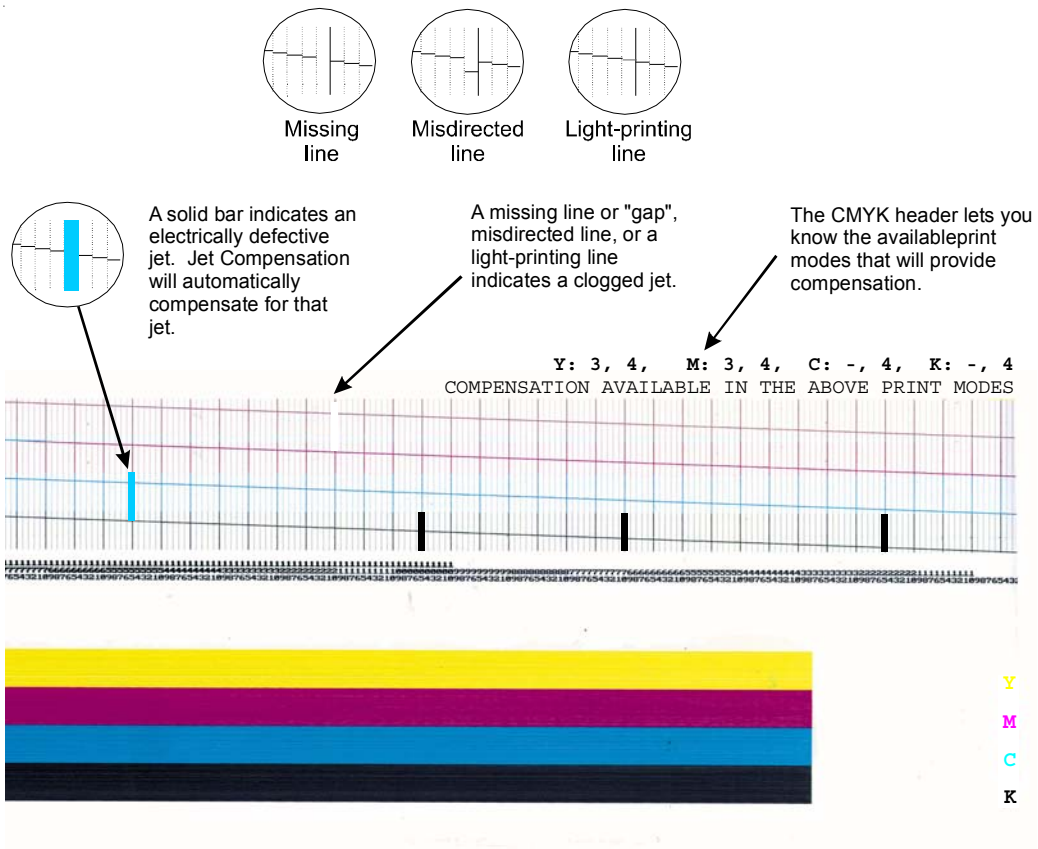
1 With media loaded, press the Shortcut button. Press the up or down arrow until **Prime** displays. Press **Select**.

A test pattern prints. It should be smooth with no obvious banding.

2 If the printed results are unsatisfactory, run the test several more times to unclog the inkjet nozzles.

To interpret the Prime test pattern

The test pattern consists of bands of color for each cartridge and a sloping line. Within the Prime test pattern, each jet is represented with a short horizontal line. Together, these short horizontal lines form a “stair step” pattern. Clogged jets appear as missing or misdirected lines in the “stair step” pattern. Electrically defective jets appear as solid bars.


Missing line
Misdirected line
Light-printing line
A solid bar indicates an electrically defective jet. Jet Compensation will automatically compensate for that jet.
A missing line or "gap", misdirected line, or a light-printing line indicates a clogged jet.
The CMYK header lets you know the availableprint modes that will provide compensation.
Y: 3, 4, M: 3, 4, C: -, 4, K: -, 4
COMPENSATION AVAILABLE IN THE ABOVE PRINT MODES
Y
M
C
K

Clogged jets

Clogged jets cannot be automatically detected and therefore must be cleared manually. If a jet is clogged, it will appear in the prime pattern as a gap in the sloping line for each cartridge.

To clear a clogged jet, remove the affected cartridge and clean it according to the instructions in the Maintenance Guide on your system CD-ROM. Your goal is to eliminate all gaps in the “stair step” pattern before starting your job. Print the Prime test to verify that the jets are clear.

Cleaning jets

It is sometimes possible to clear clogged jets using the Clean function available on the Shortcut menu. This causes the cartridges to move into the service station and the selected cartridge to expel ink. If you use this function frequently be sure to clean the service station as described in the Maintenance guide.

To use the clean function

1 With media loaded, press the Shortcut button.

2 Press the up or down arrow until **Clean** displays.

3 Press the up or down arrow until the color for the desired cartridge displays.

4 Press **Select.**

Manual jet compensation

If you are unable to clear a clogged jet, you can manually compensate for it following the steps below.

To print the manual jet compensation list

1 From the main menu, choose **Utility Menu/Open Jet/Print Jet List**.

2 Press **Select.**

The Manual Jet Compensation List prints as illustrated below, showing the current jet compensation list by number for each cartridge.

```
Manual Jet Compensation List
Y:  None
M:  1,3,10
C:  None
K:  10, 21, 30, 128
```

3 To add a jet to the compensation list, choose **Utility Menu/Open Jets** then press the up or down arrow button to display the color of the cartridge where the jet resides.

4 Press **Select.**

5 To compensate for a specific jet, press the up or down arrow button until the number of the jet is displayed. Press **Select** to toggle the jet's status. Repeat for any other jets for which you need to compensate.

6 Press **Select** to accept the settings.

Clearing the manual jet compensation list

If you have manually compensated for jets in any cartridge, be sure to clear the compensation when a new cartridge is installed.

To clear the manual jet compensation list

1 From the main menu, choose **Utility Menu/Open Jets/Clear Lists**.

2 Press **Select.**

3 Press the up or down arrow button to display the color of the cartridge whose compensation list is to be cleared.

4 Press **Select**.

5 Repeat for other cartridges if desired.

Aligning the ink cartridges

Two tests are provided to help you align the cartridges: Color Deadband and Color Calibration. You should perform the Color Deadband test before performing Color Calibration. Perform Color Deadband and Color Calibration each time a cartridge is replaced with a different cartridge. If you remove and reinstall the same cartridge, only Color Calibration needs to be performed.

Performing the color deadband test

Color Deadband provides a method for adjusting dot placement. In bidirectional printing mode, the velocity of the carriage causes dots to miss the target area on the media. The color deadband test pattern lets you check the velocity deadband values and adjust them for the best printing results.

To perform color deadband compensation

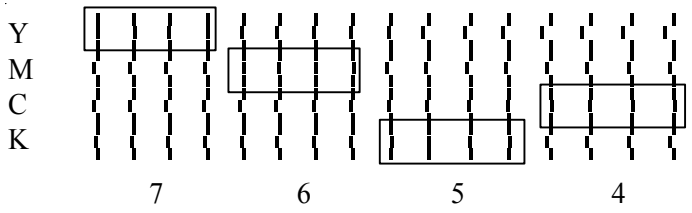
1 With paper loaded, press **Utility Menu/Db Calib**.

2 Press **Select.**

3 Press the up or down arrow button until Color Db Test displays.

4 Press **Select.**

The test pattern prints as shown below.



5 For each color, examine the vertical lines and select the straightest lines. Note the compensation number at the bottom of the lines you selected. Existing compensation values are printed in the lower right corner of the test pattern. Enter new compensation values if necessary

6 Press the up or down arrow button until the desired color and speed display (for example, Y Fast Db =7).

7 Press **Select**.

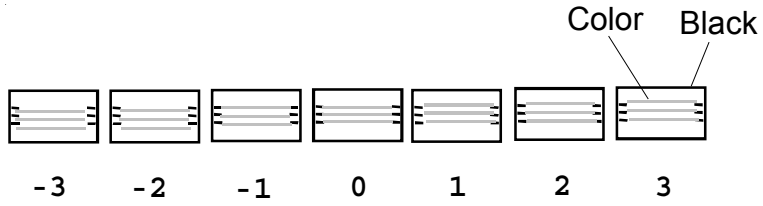
Performing color calibration

Color calibration aligns the inkjets of the cartridges to each other. Misalignment can result from small tolerance variations in cartridges during manufacturing and from cartridge alignment in the printer. Color test patterns let you check the horizontal and vertical alignment values and adjust them for the best printing results.

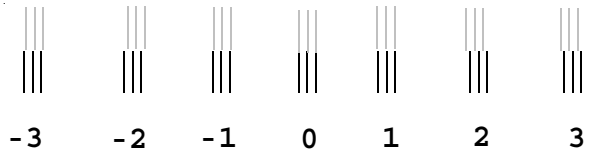
To perform color calibration

1 With paper loaded, choose **Utility Menu/Color Calib/Print Test**. Press **Select.**

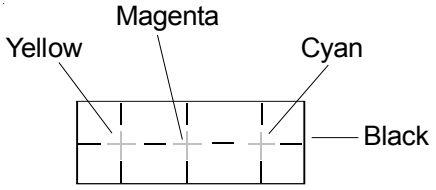
The test patterns print as shown below.



Vertical head-to-head test pattern



Horizontal head-to-head test pattern



Current heads test pattern

Examine the registration + in the Current Heads Test Pattern. If they are in registration, your calibration is correct. If not, perform the following steps to align the printer heads.

2 Choose **Utility Menu/Color Calib/C - Vert**. Press **Select**.

3 Examine the Vertical Head-to-Head Test Pattern and choose the number that represents the best color alignment for cyan-vertical.

4 Repeat for each color and for horizontal alignment as well, using the Horizontal Head-to-Head Test Pattern.

Paper axis calibration

The Paper Axis Test prints a set of vertical marks to calibrate the paper axis. To measure the marks laid down by the printer, you will need a ruler or scale at least 33 inches (838.2 mm) long. The vertical marks should be exactly 33.00 inches (838.2 mm) apart. If the distance between the marks is different from that shown on the display, you may adjust the printer by setting its values to match the length or width you measured.

Note: The Paper Axis Test should be performed every time new media is loaded.

To print the Paper Axis calibration test pattern

1 Load the printer with media that is at least 36 (91 cm) inches long (or the media that you are going to run; you cannot load a 36" sheet and then run the calibration from a roll feed because the line lengths will not match).

2 Choose **Utility Menu/Paper Calib/Paper Axis Test**. Press **Select.**

The printer prints two marks.

3 Remove the media from the printer and measure the distance between the marks. The distance between the marks should be exactly 33.00 inches (838.2 mm).

4 If the measurement is not exactly 33.00 inches, select **Paper Axis**.

5 Press **Select.**

6 Press the up or down arrow button to adjust the value to the measurement read on the scale and press **Select**.

Cartridge recognition

The printer is designed to use only cartridges specific to your printer model. To eliminate potential damage to the printer, a cartridge recognition feature checks to ensure that the proper cartridges are installed, and that they are installed properly. Cartridge recognition is performed when a print request is received (i.e., image data, prime, etc.).

In addition to cartridge recognition, the printer automatically performs tests on the cartridges and uses the information to improve image quality, monitor cartridge life, and update the user with system status. Some tests are performed between prints and require no user input, while others require user input.

To access cartridges, press **Shortcut Menu button.** Scroll to **Access Cartridge**, then press **Select** to move the carriage to the position which allows replacement of the ink cartridges. Check to make sure you have the proper cartridges installed in each position, that they all contain the same type of ink and all cartridges are installed properly. Install new cartridges if necessary. Press **Select** to return the cartridges to the service station.

To clear cartridge recognition error

1. Press the **Shortcut Menu** button**.**
2. Press the up or down arrow button until **Access Cartridge** displays**.**
3. Press **Select** to move the carriage to the position which allows replacement of the ink cartridges.
4. Verify that four valid cartridges are installed. Replace any invalid cartridges.
5. Press **Select**. If the problem has been corrected, the printer will proceed with the print request. If the problem has not been corrected, the Error and Ready LEDs will flash once in sequence.

Installing software

Your printer comes with the following software drivers and utilities on the CD:

- **AutoCAD HDI Version 6 Driver** - Use this driver for AutoCAD 2000 and AutoCAD LT 2000.
- **AutoCAD HDI Version 7 Driver** - Use this driver for AutoCAD 2000i, AutoCAD LT 2000i, AutoCAD 2002 and AutoCAD LT 2002.
- **AutoCAD ADI Driver** - Use this driver for AutoCAD R12, R13 and R14.
- **Basic Windows Driver for Windows 95/98/NT/2000/ME** - Use this driver for printing from applications other than AutoCAD. ICC Color Profiles are included for the Windows driver.
- **ENCAD File Print Utility (EFPU)** - Use this utility to send pre-ripped files to the printer and to download new firmware release. Note: This utility requires the Windows driver be installed on the same port that is used for the EFPU.

It is not necessary to install all the drivers. You only need to install the ones that you need. You should review the entire installation instructions before starting the installation.

Windows driver

The basic Windows driver lets you print from Windows-based applications.

Note: If you install the Windows driver, make sure you install the ICC Color Profiles. The profiles are necessary to get the best image quality using the Windows driver.

To install the Windows driver

1 Insert the CD into your CD drive.

2 Click on **Applications.**

3 Click on **Printer Driver** and follow the on-screen instructions.

HDI version 6 and 7 drivers

The HDI (Heidi) Version 6 and 7 drivers let you print to Encad printers from within AutoCAD. Provided on CD-ROM, updated versions can be downloaded from Encad's website (www.encad.com).

Install the driver without setting any Encad printer-specific features during installation. Once installation is complete, you can configure the driver to your requirements. Assistance with configuration and use of AutoCAD is found in extensive on-line Help files, which include videos.

Note: The Heidi driver requires that a Windows driver be installed to same port that the driver uses. Make sure you install the Windows driver as described in the previous section before installing the Heidi driver.

To install the Heidi 2000 driver

1 Insert the CD into your CD drive.

2 Click on **Applications.**

3 Click on **Heidi Driver**.

4 Click on **Install HDI Driver**, then click on the **Unzip** button.

5 If you have a previous version of the ENCAD Heidi driver, a dialog will display asking if you want to overwrite the previous files. Click YES TO ALL. Then click OK after the files are installed.

6 Start AutoCAD 2000.

7 From the File menu, select **Plotter Manage**r. Then double-click on **Add-A-Plotter-Wizard.**

8 After reviewing the Introduction Page, click **NEXT**.

9 In the Begin dialog, accept the default: **My Computer** and click **NEXT**.

10 In the Plotter Model dialog, click on **ENCAD** in the left list box (under manufacturers) and then select your printer from the right list box (under models). Click **NEXT**.

11 In the **Import PCP** or **PC2** dialog, select **IMPORT FILE** only if you have PCP or PC2 files from AutoCAD 13 or 14 to import. (If you do want to import files at this time, you will need the correct file names for entering here.) Otherwise, click **NEXT**.

12 In the **Ports** dialog, select **LPT1** and click **NEXT**. (If your printer is networked, select the networked printer.)

13 In the **Plotter Name** dialog, enter a new name here for your printer or use the default name and click **NEXT**. Make sure you read the note under the plotter name field.

14 Click **Finish**. You should see your printer appear in the list of printers.

15 To configure your driver, double click on your printer in the list.

ADI driver

The ENCAD ADI driver lets you print to Encad printers from AutoCAD. Use it to print files created with AutoCAD Windows Releases 12, 13, and 14. This driver version 6 uses the HP-RTL command language to send data to the printer.

Remove Prior Versions of ENCAD ADI Drivers

If you have prior versions of ENCAD ADI drivers installed, you must first remove them. Many of the initialization files have been changed with this release so conflicts may arise if you don't first remove the old drivers. Then run the installation program to install the new driver files. The installation program will make the necessary changes to your AutoCAD files, or allow you to change them manually.

The ENCAD ADI driver version 6 uses the HP-RTL or HP-GL/2 command languages to send data to the printers.

Warning: Before you remove or modify any of your files, be sure that you have secure backups.

Remove Encad Printer Configurations

Start up AutoCAD and go to AutoCAD's Configuration Menu. Choose Configure A Printer, and then Delete A Printer. Delete all configurations of Encad printers.

Remove Prior Version Driver Files

Locate the directory which contains the Encad driver files. Typically this directory is name "ENCAD" and is a sub-directory under AutoCAD "DRV" driver subdirectory.

Remove any files with the extension .exp or .dll from the Encad directory. Do not delete files from other directories!

Remove References to Encad Drivers in AutoCAD's ACAD13.LSP File (for AutoCAD Windows Release 13 only)

Locate the file acad13.lsp. It is typically in an AutoCAD subdirectory, such as C:\ACADR13\COM or C:\ACADR13\WIN. Edit the file acad13.lsp and remove any line which contains a reference to the Encad driver utility wenconfn.exp. For example, remove the following typical lines:

```
;;;===load encad...
autoarxload   "c:/r13/win/drx/encad/wenconfn"...
```

To install the ADI driver:

1 Insert the CD into your CD drive.

2 Click on **Applications.**

3 Click on **ADI Driver**.

4 The, click on **Install ADI Driver** and follow the on-screen instructions.

5 Answer the questions about the AutoCAD installation.

- The directory where AutoCAD is installed. This refers to the base or root AutoCAD directory.
- For AutoCAD release 12 DOS, the default directory name will be C:\ACAD.
- For AutoCAD release 13 DOS or Windows, it will be C:\R13.
- For AutoCAD release 14 it will be C:\Program Files\AutoCAD R14.
- Where the AutoCAD executable file, ACAD.EXE is located. Generally, this file is in the default AutoCAD directory mentioned above. In the case of AutoCAD R13, it will reside in the C:\R13\Win or C:\R13\DOS directories.
- Where to install the ENCAD ADI driver. The installation program creates an ENCAD directory under the DRV directory such as \R13\WIN\DRV\ENCAD and installs the driver in this directory.
- Where AutoCAD's ".DCL" files are stored. These files are dialog controls for AutoCAD commands and drivers. The Encad ".DCL" file needs to be stored with these files. (AutoCAD 12 and 13 Windows only) Where the ACAD.INI file is stored.

This file sets the path to the driver location. The ENCAD ADI driver installation will modify this file to point to the ENCAD directory. The original file will be saved to a file called ACADINI.000. If the original file needs to be restored, simply delete the modified ACAD.INI file and change the ACADINI.000 file name back to ACAD.INI. (AutoCAD 12 and 13 DOS only) The name and path of the batch file that starts AutoCAD. Typically, the name of the file is ACADR12.BAT or ACADR13.BAT and is stored in the root: C:\ or in the AutoCAD directory: C:\ACAD or C:\R13\DOS. The original file will be saved to a file called ACADR12.000 or ACADR13.000 and can be restored if necessary by deleting the modified ACADR*.bat and renaming the ACADR*.000 to ACADR*.BAT.

- The directory where the ACADR*.LSP file is stored. This file loads certain Autolisp routines and other functions when AutoCAD is launched.

  The ENCAD ADI driver installation will modify this file so that the ENCAD ADI driver will be automatically loaded with each session of AutoCAD.

6 After successfully installing the ENCAD ADI Driver, start AutoCAD.

Details on configuring the driver are included on the CD-ROM.

Network considerations

If your printer is connected to a network, you will want to use the optional Encad print server which includes hardware and software components. It is a high-performance compact print server that plugs directly into the parallel port of the printer. It supports 100baseT Fast Ethernet. For installation and configuration information, refer to the documentation provided with the print server.

Making a test print

The CD included with your system contains sample images. After installing the software, try printing one of the images.

Canceling a print

To cancel a print, first send a cancel order from your computer using the appropriate command for your software application. For example, you can delete the file in the **Print Manager/Print Options**. To clear the buffer after cancelling a print, press **Reset** on the printer's control panel.

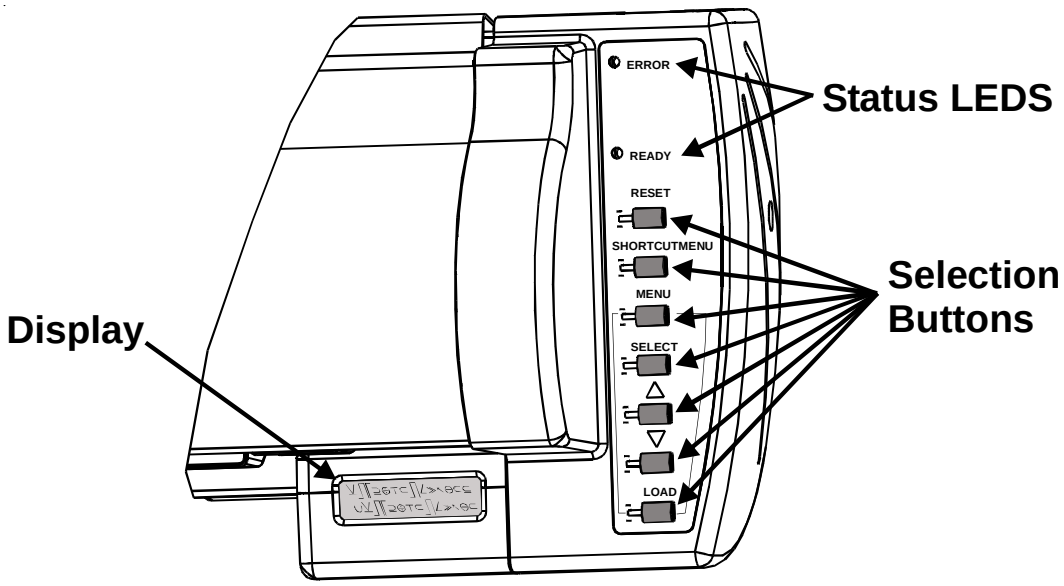
Printer options 2

You can define printer options through your application software or by choosing settings from the printer's control panel. The following printer options are described in this chapter:

- Initialize (return to printer default settings)
- Print Mode
- Paper Options
- User Setup

Control Panel

The control panel at the right side of the printer includes seven keys and a display which indicates modes and settings.

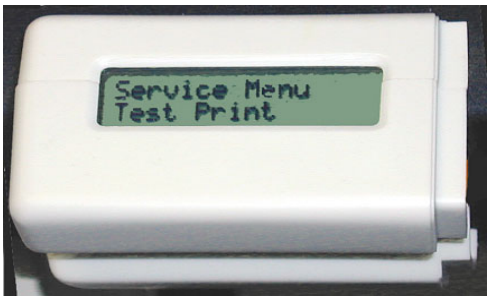


Key	Function
Menu	Exits the current menu and returns to the previous menu level.
Select	Press Select to display a menu topic, change a submenu option, or set a parameter. If the current menu displays a function to be performed (i.e., Prime) pressing Select causes the function to be executed. If the current menu has options, pressing Select will toggle through the options. The equals sign (=) will blink while using the arrow keys to scroll through the values for that option. Holding the up or down arrow buttons down allows fast scrolling. Pressing the Select key again sets the displayed value or parameter.
Up	Toggles up through sub-menus or options.
Down	Toggles down through sub-menus or options.
Load	Loads and positions media for printing.
Reset	Clears the printer's buffer after you cancel a print at the computer.
Shortcut Menu	Shortcuts to a menu for selecting Cut, Prime, Feed Media, Access Cartridge, Pause, and Clean. See details below.
LEDS	
Ready	A green LED indicates the printer is online. It blinks when image data is being processed or printed.
Error	A yellow LED lights to indicate error conditions.
Shortcut Menu	
Cut	Cuts the media.
Access Cartridge	Moves the carriage to the center of the platen for access to the cartridges.
Feed Media	Use in combination with the up and down arrow buttons to move media.
Clean (CMYK)	Causes the selected cartridge to expel ink into the service station.
Prime	Prints the Prime test.
Pause	Pauses the current print job. Press Select to resume it.

LED display

A two-line LED display to the left of the control panel shows the currently selected menu and submenu or option. The menu tree in Appendix B gives you a summary of all the printer menus, modes and their functions.

Note: the display is not capable of displaying Korean or Chinese characters.



Returning to the default settings

Choosing **Main Menu/Setup Menu/User Setup/Init Settings** returns all printer options to the factory defaults. All saved user settings are cleared. The table at the end of this chapter shows the printer defaults.

Printing the settings

Choose **Setup Menu/User Setup/Print Settings,** then press **Select** to print a listing of the printer's current settings. Be sure to have paper loaded before you start.

Choosing print mode options

Your printer offers several print modes which let you make tradeoffs between speed and quality.

The print mode you use depends on various factors, such as your software application, whether you're printing in color or monochrome, and the type of media you're using. Each print mode directly affects the printing speed and quality of the image you print, so you should understand the differences.

Each of the print modes attempts to strike a balance between speed and quality, with the quality mode providing quality images at a reasonable printing speed for most users. Whenever you choose a print mode, you will choose to emphasize either speed or quality.

Print mode options include color mode and print quality. Default print mode settings are summarized in the following table.

MODE	DPI
DRAFT	600x300
SUPER	600x300
NORMAL	600x600
BEST	600x600

Color mode

Color mode refers to whether you are printing in color, grayscale or monochrome. For fastest speed, grayscale and monochrome are available in four-black cartridge configurations.

Note: Printing in four black mode requires that a black ink cartridge be installed in each cartridge slot.

To choose the color mode

1 Choose **Setup Menu/Print Modes/Color Mode**.

2 Press **Select.**

3 Press the up or down arrow button to display either **Color, 4BGray, 4BMono, 1BGray** or **1BMono**.

4 Press **Select**.

Quality modes

There are four print quality modes. They are available for Color or 4BLK mode. Draft and Super Draft modes are suited for line drawings and drawings with light solid fills, the types of images created by most CAD users. These modes are not recommended for printing images, because bleeding may occur in areas of heavy fills or dark shading when printed with these modes.

Draft - This mode generally is used when speed is more important than quality. Use it to check position, layout, color, etc. It will rarely be used for finished quality images. This is a single pass mode for color, dual pass for 4BLK mode.

Super - This mode is twice as fast as draft. It will rarely be used for finished quality images. This is a single pass mode.

Normal - This setting is useful for fast, better than average quality printing on paper media. This is a three pass mode.

Best - For images that have sections of high quality continuous tone where quality is more important than printing speed. This is a four pass mode.

To choose print quality

1 Choose **Setup Menu/Print Modes/Quality=**.
2 Press **Select.**
3 Use the up or down arrow button to display the desired quality.
4 Press **Select**.

Resolution

Resolution refers to the dots per inch (dpi) which make up the image. You can choose either 300 or 600 dpi. This resolution setting overrides the default dpi in the quality mode setting.

To choose resolution

1 Choose **Setup Menu/Print Modes/DPI=**.
2 Press **Select**.
3 Use the up or down arrow button to display the desired resolution.
4 Press **Select**.

Important notes about image size vs. dpi

For best results, be sure the printer dpi setting matches the image resolution in the file you are printing. Mismatches in dpi will cause the image to be resized as described in the table which follows.

The printer always prints at 600 dpi, even when the dpi setting in the **Print Modes** menu is set to 300 dpi. The dpi setting refers to the resolution at which your image is created, not the resolution at which it is printed.

Image (file) resolution	Printer dpi setting	Effect on printed output	
300 dpi	300 dpi	1 input pixel prints as 4 output pixels.	The printed image is the same size as the original.
300 dpi	600 dpi	1 input pixel prints as 1 output pixel.	The printed image is 1/4 the size of the original.
600 dpi	300 dpi	1 input pixel prints as 1 output pixel.	The printed image is four times the size of the original.
600 dpi	600 dpi	1 input pixel prints as 1 output pixel.	The printed image is the same size as the original.

Choosing paper options

Paper options let you define the following:

- **Supply ***
- **Media Standard**
- **Auto-Cut**
- **Margins**
- **Auto Wipe**
- **Save Media**

*Media feeding and loading are described in the Installation Sheet.

Media supply

This setting allows you to select your media supply options. The available options are **Sheet** and **Roll**. Select **Sheet** if you intend to use cut sheet stock. Select **Roll** if you are going to use roll paper on the roll feeder. When you load media, the printer automatically detects its width. It also detects and indicates media out conditions.

To choose supply type

1 Choose **Setup Menu/Paper Options/Supply=.**
2 Press **Select.**
3 Use the up or down arrow button to display the desired supply type.
4 Press **Select**.

Media standard

When you create an image, you determine its size at the computer. It's important that you know the size of the image and load the appropriate size media because the printer automatically defines the print area based on the loaded media's width. Be sure that the media you load is wide enough to accommodate the image. If extra length is required, use roll media. If the media is smaller than the image, the image may be truncated. Minimum media width is 8.5". Note that the printable area is different depending on whether you are using roll media or cut sheets. The printable area also differs for cut sheets depending on color or 4BLK mode. Printable areas are shown in the tables which follow.

To choose the media standard

1 Choose **Setup Menu/Paper Option/Media=.**
2 Press **Select.**
3 Use the up or down arrow button to display the desired media standard.
4 Press **Select**.

Media Sizes and Maximum Printing Areas for Rollfeed Media

	Paper Size			Normal Print Area			Expanded Print Area		
				GRAPHICS (U.S. OFFSET)					
	19.0"	x	25.0"	17.8"	x	23.8"	18.6"	x	24.6"
	20.0"	x	28.0"	18.8"	x	26.8"	19.6"	x	27.6"
	22.0"	x	26.0"	20.8"	x	24.8"	21.6"	x	25.6"
	23.0"	x	35.0"	21.8'	x	33.8"	22.6"	x	34.6"
	24.0"	x	29.0"	22.8"	x	27.8"	23.6"	x	28.6"
	25.0"	x	38.0"	23.8"	x	36.8"	24.6"	x	37.6"
	32.0"	x	44.0"	30.8"	x	42.8"	31.6"	x	43.6"
	35.0"	x	45.0"	33.8"	x	43.8"	34.6"	x	44.6"
	36.0"	x	45.0"	34.8"	x	43.8"	35.6"	x	44.6"
				SPECIAL MAP					
	26.0"	x	38.0"	24.8"	x	36.8"	25.6"	x	37.6"
	27.0"	x	39.0"	25.8"	x	37.8"	26.6"	x	38.6"
	30.0"	x	42.0"	28.8"	x	40.8"	29.6"	x	41.6"
	610mm	x	860mm	580mm	x	830mm	600mm	x	850mm
	860mm	x	1220mm	830mm	x	1190mm	850mm	x	1210mm
				U.S. ARCHITECTURAL					
A	9.0"	x	12.0"	7.8"	x	10.8"	8.6"	x	11.6"
B	12.0"	x	18.0"	10.8"	x	16.8"	11.6"	x	17.6"
C	18.0"	x	24.0"	16.8"	x	22.8"	17.6"	x	23.6"
D	24.0"	x	36.0"	22.8"	x	34.8"	23.6"	x	35.6"
E	36.0"	x	48.0"	34.8"	x	46.8"	35.6"	x	47.6"
				U.S. ENGINEERING					
A	8.5"	x	11.0"	7.5"	x	9.8"	8.1"	x	10.6"
B	11.0"	x	17.0"	9.8"	x	15.8"	10.6"	x	16.6"
C	17.0"	x	22.0"	15.8"	x	20.8"	16.6"	x	21.6"
D	22.0"	x	34.0"	20.8"	x	32.8"	21.6"	x	33.6"
E	34.0"	x	44.0"	32.8"	x	42.8"	33.6"	x	43.6"
				ISO-A					
A4	210	x	297 mm	180	x	267 mm	200	x	287 mm
A3	297	x	420 mm	267	x	390 mm	287	x	410 mm
A2	420	x	594 mm	390	x	564 mm	410	x	584 mm
A1	594	x	840 mm	564	x	810 mm	584	x	830 mm
	625	x	880 mm	595	x	850 mm	615	x	870 mm
A0	841	x	1189 mm	811	x	1159 mm	831	x	1179 mm
				METRIC-DIN					
A4	250	x	337 mm	220	x	307 mm	240	x	327 mm
A3	337	x	460 mm	307	x	430 mm	327	x	450 mm
A2	460	x	634 mm	430	x	604 mm	450	x	624 mm
	610	x	860 mm	580	x	830 mm	600	x	850 mm
A1	634	x	881 mm	604	x	851 mm	624	x	871 mm
	860	x	1220 mm	830	x	1190 mm	850	x	1210 mm
A0	881	x	1129 mm	851	x	1199 mm	871	x	1219 mm
	1000	x	1414 mm	970	x	1384 mm	990	x	1404 mm
	1189	x	1682 mm	1159	x	1652 mm	1179	x	1672 mm
				ISO-B					
B4	250	x	353 mm	220	x	323 mm	240	x	343 mm
B3	353	x	500 mm	323	x	470 mm	343	x	490 mm
B2	500	x	707 mm	470	x	677 mm	490	x	697 mm
B1	707	x	1000 mm	677	x	970 mm	697	x	990 mm

Media Sizes and Maximum Printing Areas for Sheet Media - Mono Mode

	Paper Size			Normal Print Area			Expanded Print Area		
				GRAPHICS (U.S. OFFSET)					
	19.0	x	25.0"	17.8"	x	22.8"	18.6"	x	23.2"
	20.0"	x	28.0"	18.8"	x	25.8"	19.6"	x	26.2"
	22.0"	x	26.0"	20.8"	x	23.8"	21.6"	x	24.2"
	23.0"	x	35.0"	21.8"	x	32.8"	22.6"	x	33.2"
	24.0"	x	29.0"	22.8"	x	26.8"	23.6"	x	27.2"
	25.0"	x	38.0"	23.8"	x	35.8"	24.6"	x	36.2"
	32.0"	x	44.0"	30.8"	x	41.8"	31.6"	x	42.2"
	35.0"	x	45.0"	33.8"	x	42.8"	34.6"	x	43.2"
	36.0"	x	45.0"	34.8"	x	42.8"	35.6"	x	43.2"
				SPECIAL MAP					
	26.0"	x	38.0"	24.8"	x	35.8"	25.6"	x	36.2"
	27.0"	x	39.0"	25.8"	x	36.8"	26.6"	x	37.2"
	30.0"	x	42.0"	28.8"	x	39.8"	29.6"	x	40.2"
	610mm	x	860mm	580mm	x	805mm	600mm	x	815mm
	860mm	x	1220mm	830mm	x	1165mm	850mm	x	1175mm
				U.S. ARCHITECTURAL					
A	9.0"	x	12.0"	7.8"	x	9.8"	8.6"	x	10.2"
B	12.0"	x	18.0"	10.8"	x	15.8"	11.6"	x	16.2"
C	18.0"	x	24.0"	16.8"	x	21.8"	17.6"	x	22.2"
D	24.0"	x	36.0"	22.8"	x	33.8"	23.6"	x	34.2"
E	36.0"	x	48.0"	34.8"	x	45.8"	35.6"	x	46.2"
				U.S. ENGINEERING					
A	8.5"	x	11.0"	7.3"	x	8.8"	8.1'	x	9.2"
B	11.0"	x	17.0"	9.8"	x	14.8"	10.6"	x	15.2"
C	17.0"	x	22.0"	15.8"	x	19.8"	16.6"	x	20.2"
D	22.0"	x	34.0"	20.8"	x	31.8"	21.6"	x	32.2"
E	34.0"	x	44.0"	32.8"	x	41.8"	33.6"	x	42.2"
				ISO-A					
A4	210	x	297 mm	180	x	242 mm	200	x	252 mm
A3	297	x	420 mm	267	x	365 mm	287	x	375 mm
A2	420	x	594 mm	390	x	539 mm	410	x	549 mm
A1	594	x	841 mm	564	x	786 mm	584	x	796 mm
	625	x	880 mm	595	x	825 mm	615	x	835 mm
A0	841	x	1189 mm	811	x	1134 mm	831	x	1144 mm
				METRIC-DIN					
A4	250	x	337 mm	220	x	282 mm	240	x	292 mm
A3	337	x	460 mm	307	x	405 mm	327	x	415 mm
A2	460	x	634 mm	430	x	579 mm	450	x	589 mm
A1	634	x	881 mm	604	x	826 mm	624	x	836 mm
A0	881	x	1229 mm	851	x	1174 mm	871	x	1184 mm
				ISO-B					
B4	250	x	353 mm	220	x	298 mm	240	x	308 mm
B3	353	x	500 mm	323	x	445 mm	343	x	455 mm
B2	500	x	707 mm	470	x	652 mm	490	x	662 mm
B1	707	x	1000 mm	677	x	945 mm	697	x	955 mm

Media Sizes and Maximum Printing Areas for Sheet Media - Color Mode

	Paper Size			Normal Print Area			Expanded Print Area		
				GRAPHICS					
	19.0"	x	25.0"	17.8"	x	22.0"	18.6"	x	22.4"
	20.0"	x	28.0"	18.8"	x	25.0"	19.6"	x	25.4"
	22.0"	x	26.0"	20.8"	x	23.0"	21.6"	x	23.4"
	23.0"	x	35.0"	21.8"	x	32.0"	22.6"	x	32.4"
	24.0"	x	29.0"	22.8"	x	26.0"	23.6"	x	26.4"
	25.0"	x	38.0"	23.8"	x	35.0"	24.6"	x	35.4"
	32.0"	x	44.0"	30.8"	x	41.0"	31.6"	x	41.4"
	35.0"	x	45.0"	33.8"	x	42.0"	34.6"	x	42.4"
	36.0"	x	45.0"	34.8"	x	42.0"	35.6"	x	42.4"
				SPECIAL MAP					
	26.0"	x	38.0"	24.8"	x	35.0"	25.6"	x	35.4"
	27.0"	x	39.0"	25.8"	x	36.0"	26.6"	x	36.4"
	30.0"	x	42.0"	28.8"	x	39.0"	29.6"	x	39.4"
	610mm	x	860mm	580mm	x	785mm	600mm	x	795mm
	860mm	x	1220mm	830mm	x	1145mm	850mm	x	1155mm
				U.S. ARCHITECTURAL					
A	9.0"	x	12.0"	7.8"	x	9.0"	8.6"	x	9.4"
B	12.0"	x	18.0"	10.8"	x	15.0"	11.6"	x	15.4"
C	18.0"	x	24.0"	16.8"	x	21.0"	17.6"	x	21.4"
D	24.0"	x	36.0"	22.8"	x	33.0"	23.6"	x	33.4"
E	36.0"	x	48.0"	34.8"	x	45.0"	35.6"	x	45.4"
				U.S. ENGINEERING					
A	8.5"	x	11.0"	7.3"	x	8.0"	8.1"	x	8.4"
B	11.0"	x	17.0"	9.8"	x	14.0"	10.6"	x	14.4"
C	17.0"	x	22.0"	15.8"	x	19.0"	16.6"	x	19.4"
D	22.0"	x	34.0"	20.8"	x	31.0"	21.6"	x	31.4"
E	34.0"	x	44.0"	32.8"	x	41.0"	33.6"	x	41.4"
				ISO-A					
A4	210	x	297 mm	180	x	222 mm	200	x	232 mm
A3	297	x	420 mm	267	x	345 mm	287	x	355 mm
A2	420	x	594 mm	390	x	519 mm	410	x	529 mm
A1	594	x	841 mm	564	x	766 mm	584	x	776 mm
625		x	880 mm	595	x	805 mm	615	x	815 mm
A0	841	x	1189 mm	811	x	1114 mm	831	x	1124 mm
				METRIC-DIN					
A4	250	x	337 mm	220	x	262 mm	240	x	272 mm
A3	337	x	460 mm	307	x	385 mm	327	x	395 mm
A2	460	x	634 mm	430	x	559 mm	450	x	569 mm
A1	634	x	881 mm	604	x	806 mm	624	x	816 mm
A0	881	x	1229 mm	851	x	1154 mm	871	x	1164 mm
				ISO-B					
B4	250	x	353 mm	220	x	278 mm	240	x	288 mm
B3	353	x	500 mm	323	x	425 mm	343	x	435 mm
B2	500	x	707 mm	470	x	632 mm	490	x	642 mm
B1	707	x	1000 mm	677	x	925 mm	697	x	935 mm

Media Sizes and Maximum Printing Areas for Sheet Media - KKKK Mode

	Paper Size			Normal Print Area			Expanded Print Area		
				GRAPHICS					
	19.0"	x	25.0"	17.8"	x	21.6"	18.6"	x	22.0"
	20.0"	x	28.0"	18.8"	x	24.6"	19.6"	x	25.0"
	22.0"	x	26.0"	20.8"	x	22.6"	21.6"	x	23.0"
	23.0"	x	35.0"	21.8"	x	31.6"	22.6"	x	32.0"
	24.0"	x	29.0"	22.8"	x	25.6"	23.6"	x	26.0"
	25.0"	x	38.0"	23.8"	x	34.6"	24.6"	x	35.0"
	32.0"	x	44.0"	30.8"	x	40.6"	31.6"	x	41.0"
	35.0"	x	45.0"	33.8"	x	41.6"	34.6"	x	42.0"
	36.0"	x	45.0"	34.8"	x	41.6"	35.6"	x	42.0"
				SPECIAL MAP					
	26.0"	x	38.0"	24.8"	x	34.6"	25.6"	x	35.0"
	27.0"	x	39.0"	25.8"	x	35.6"	26.6"	x	36.0"
	30.0"	x	42.0"	28.8"	x	38.6"	29.6"	x	39.0"
	610mm	x	860mm	580mm	x	775mm	600mm	x	785mm
	860mm	x	1220mm	830mm	x	1135mm	850mm	x	1145mm
				U.S. ARCHITECTURAL					
A	9.0"	x	12.0"	7.8"	x	8.6"	8.6"	x	9.0"
B	12.0"	x	18.0"	10.8"	x	14.6"	11.6"	x	15.0"
C	18.0"	x	24.0"	16.8"	x	20.6"	17.6"	x	21.0"
D	24.0"	x	36.0"	22.8"	x	32.6"	23.6"	x	33.0"
E	36.0"	x	48.0"	34.8"	x	44.6"	35.6"	x	45.0"
				U.S. ENGINEERING					
A	8.5"	x	11.0"	7.3"	x	7.6"	8.1"	x	8.0"
B	11.0"	x	17.0"	9.8"	x	13.6"	10.6"	x	14.0"
C	17.0"	x	22.0"	15.8"	x	18.6"	16.6"	x	19.0"
D	22.0"	x	34.0"	20.8"	x	30.6"	21.6"	x	31.0"
E	34.0"	x	44.0"	32.8"	x	40.6"	33.6"	x	41.0"
				ISO-A					
A4	210	x	297 mm	180	x	212 mm	200	x	222 mm
A3	297	x	420 mm	267	x	335 mm	287	x	345 mm
A2	420	x	594 mm	390	x	509 mm	410	x	519 mm
A1	594	x	841 mm	564	x	756 mm	584	x	766 mm
	625	x	880 mm	595	x	795 mm	615	x	805 mm
A0	841	x	1189 mm	811	x	1104 mm	831	x	1114 mm
				METRIC-DIN					
A4	250	x	337 mm	220	x	252 mm	240	x	262 mm
A3	337	x	460 mm	307	x	375 mm	327	x	385 mm
A2	460	x	634 mm	430	x	549 mm	450	x	559 mm
A1	634	x	881 mm	604	x	796 mm	624	x	806 mm
A0	881	x	1229 mm	851	x	1144 mm	871	x	1154 mm
				ISO-B					
B4	250	x	353 mm	220	x	268 mm	240	x	278 mm
B3	353	x	500 mm	323	x	415 mm	343	x	425 mm
B2	500	x	707 mm	470	x	622 mm	490	x	632 mm
B1	707	x	1000 mm	677	x	915 mm	697	x	925 mm

Margins

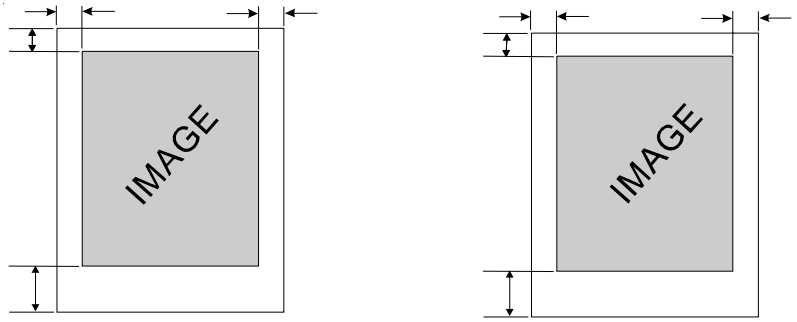
Margins can be set to **Normal** or **Expanded**. The **Expanded** setting expands the print area and decreases the margins.

Any part of the image that extends into the margin will be clipped. When the **Margins** option is set to **Expanded**, make sure that you align the media accurately using the guide on the right of the platen so that the ink doesn't exceed the edge of the media.

Cut sheet maximum printing area

Normal: 0.59" (15 mm) margin on each of three sides and 1.38" (35 mm) margin on the fourth side.

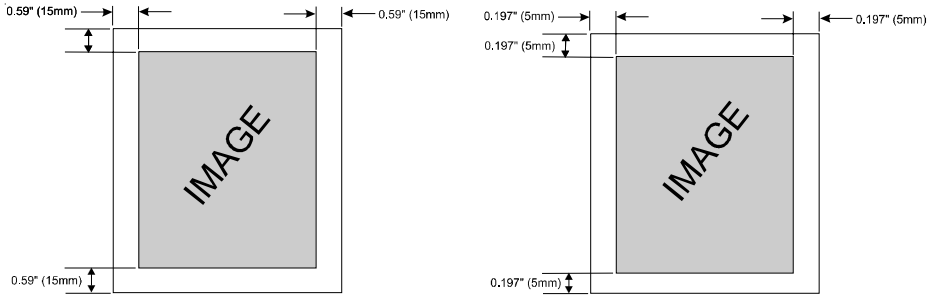
Expanded: 0.197" (5 mm) margin on each of three sides and a 1.38" (35 mm) margin on the fourth side.



Rollfeed maximum printing area

Normal: 0.59" (15 mm) margin on all sides.

Expanded: 0.197" (5 mm) margin on all sides.



To set margins

1 Choose **Setup Menu/Paper Options/Margins**.
2 Press **Select.**
3 Use the up or down arrow button to display the desired margin type; Normal or **Expanded**.
4 Press **Select**.

Auto-Cut

When the **Auto-Cut** option is set to on, the printer automatically cuts the media when the image is complete. Be sure the image is dry before cutting, turn on the dryer and/or specify a **Dry Time**. See “Setting a Dry Time” in this chapter for the procedure. You can press the Shortcut button on the control panel and select **Cut** at any time to cut the media.

Note: Automatic cutting is disabled when the paper option is set to **Sheet**.

To set Auto-Cut

1 Choose **Setup Menu/Paper Option/Auto-Cut**.
2 Press **Select**.
3 Use the up or down arrow button to display **On** or **Off**.
4 Press **Select**.

Save Media

When the **Save Media** is On (the default), the media advances only as far as needed to print the image. With the **Save Media** option turned off, the printer advances the full print area of the loaded media. For example, if a 36 inch roll is loaded, the printer advances the length of the print area for a standard 36 x 48" sheet even if the printed image is only 30 inches long.

To turn off Save Media

1 Choose **Setup Menu/Paper Options/Save Media**.
2 Press **Select**.
3 Use the up or down arrow button to display **Off**.
4 Press **Select**.

Auto-Wipe

The cartridge jet plates are periodically wiped during printing. The default for this function is Off.

To turn off the wiper

1 Choose **Setup Menu/Paper Options/Auto-Wipe**.
2 Press **Select.**
3 Use the up or down arrow button to display **Off**.
3 Press **Select**.

Defining user setup

You can save the options you use most frequently so you don't have to reconfigure the printer each time you print an image. You can define up to eight different combinations of options and save them with a user number ranging from 1-8. Select the user number you want to use before sending an image to the printer. If your printer driver has host-controlled settings, the user setup may be overridden. If possible, disable the driver control settings.

You can save settings for the following options:

- **Cut On or Off**
- **Auto-Wipe On or Off**
- **Save Media On or Off**
- **Media Standard**
- **Color Mode**
- **Normal or Expanded Margins**
- **Drying Time**
- **Units**
- **Quality Mode**

To save user setup

1 Choose **Setup Menu/User Setup/Save User**.
2 Press **Select.**
3 Use the up or down arrow button to display the number corresponding to the user setting you are saving.
4 Press **Select.**

To use a previously saved user setting

1 Choose **Setup Menu/User Setup/Select User**.
2 Press **Select**.
3 Use the up or down arrow button to display the number for the user settings (i.e., user 1, user 2, etc.) to use.
4 Press **Select**.

Defining units of measure

You can choose either **English** or **Metric** units of measure.

To choose measurement units

1 Choose **Setup Menu/User Setup/Units**.
2 Press **Select.**
3 Use the up or down arrow button to display the desired unit, **English** or **Metric**.
4 Press **Select**.

Choosing a language

Printer menus and options can be displayed in the following languages: English, German, French, Italian, Portuguese, Spanish, and Japanese.

To choose a language

1 Choose **Setup Menu/User Setup/Language**.
2 Press **Select.**
3 Use the up or down arrow button to display the desired language.
4 Press **Select**.

Choosing ink options

Ink preheat

Cartridge heat settings are optimized for QIS media being printed in a standard office environment. If you are experiencing banding, poor fills, or over dot gain, and you have tried all other means to correct these conditions, you may want to experiment with the ink preheat settings. These will vary depending on the ambient temperature where the printer is located and the media and ink used.

Defaults for the heater setting are determined by the ink type in use. The printer determines this by reading the chip on the back of each cartridge. When you adjust the ink settings, you are increasing or decreasing the heat from the default temperature. Pressing the + (plus) button increases the temperature, pressing - (minus) decreases it. When you have reached the limits of the temperature range, the panel will display either **MAX** or **OFF**. These settings are saved in the printer. If you change to a different type of ink, you may need to change the heater settings to accommodate the new ink type.

If you are working in a cold or dry environment, try turning the heat up for a larger dot size. If the heat is turned up too far, the ink may run or sputter. If you are working in a humid or hot environment, turn the heat down for a smaller dot size. Settings are made individually for each cartridge.

To set the ink preheat time

1 Choose **Setup Menu/Ink Options/Ink (C, M, Y, or K) Preheat** .
2 Press **Select**.
3 Use the up or down arrow button to display the desired preheat value (-3 to 4).
4 Press **Select**.
5 Repeat for other cartridges if desired.

Dry time

Unattended prints might require drying time to prevent the ink from smearing when the image touches previously printed images. In addition, you may want to change drying time depending on the media you are using, the ambient temperature and the humidity. Dry Time values range from 10 seconds to 60 minutes. When the Dry Time has expired, the printer cuts the image and begins printing the next image in the buffer.

To set the dry time

1 Choose **Setup Menu/Ink Options/Dry Time**.

2 Press **Select**.

3 Use the up or down arrow button to display the desired dry time: 0 to 60 seconds (in 5 second increments) or 1 to 60 minutes (in 1 minute increments).

4 Press **Select**.

Printer Default Settings

USER SETTINGS	DEFAULT	OTHER OPTIONS
COLOR MODE	COLOR	4BMONO, 4BGRAY, 1BMONO, 1BGRAY
QUALITY MODE	NORMAL	DRAFT, SUPER, BEST
RESOLUTION	600	300
MEDIA STANDARD	ALL	US ENGR, US ARCH, ISO A, MET ALL, US ALL, GRAPHICS, MET OVER A, ISO B, SPECIAL
MARGINS	NORMAL	EXPANDED
AUTO CUT	ON	OFF
SAVE MEDIA	ON	OFF
AUTO WIPE	OFF	ON
CALIB XY	ON	OFF
SELECT USER	1	1 TO 8
SAVE USER	1	1 TO 8
UNITS	ENGLISH	METRIC
LANGUAGE	ENGLISH	GERMAN, FRENCH, ITALIAN, SPANISH, PORTUGUESE, JAPANESE
DRY TIME	0	0 – 60 SECONDS OR 1 – 60 MINUTES
SYSTEM SETTINGS	**DEFAULT**	**OTHER OPTIONS**
SUPPLY TYPE	ROLL	SHEET
INK REDUCT	0	12.5, 25, 37.5, 50%
INK PREHEAT	0	-3 to 4
CALIBRATION SETTINGS	**DEFAULT**	**OTHER OPTIONS**
SLOW DEADBAND	0	-2…+2
FAST DEADBAND C, M, Y, K	7	0 – 12
CYAN VERTICAL	0	-9…+9
MAGENTA VERTICAL	0	-9…+9
YELLOW VERTICAL	0	-9…+9
CYAN HORIZONTAL	0	-9…+9
MAGENTA HORIZONTAL	0	-9…+9
YELLOW HORIZONTAL	0	-9…+9
PAPER AXIS	33.00	32-34

Printing 3

The way you print from your computer depends on the driver or RIP you have installed. Your printer comes with the following drivers and one RIP:

- ENCAD Windows driver for general use
- Heidi Driver - for printing files created with AutoCAD 2000 and LT 2000
- ADI Driver - for printing files created with versions of AutoCAD prior to 2000.

Printing a file

The Windows driver allows you to print from virtually any Windows-based application.

To print a file using the Windows driver

1. Open the file from within an application.
2. Choose **File/Print**.
3. Select your printer.
4. Click **Features**.
5. From here, **Page Setup** and **Advanced** tabs allow you to adjust printer specific options for your print file. Generally, you should only need to set paper size and orientation options.
6. Click **OK**, then click **OK** again to send your file to the printer.

Heidi driver

Use the Heidi Driver to print files created with AutoCAD 2000, 2000i or LT 2000. Details on the print options are included in the on-line help provided with the driver.

To print from the Heidi driver:

1. Open the document from AutoCAD 2000, 2000i or LT 2000.
2. Choose **File/Print**.
3. Select your printer.
4. Change basic print options, such as number of copies and page range, as needed. When a print option is available in your application's Print dialog box, set it with your application.
5. Open the printer properties dialog box and change the driver print settings as needed. For more information, refer to the on-line help.

Device and document settings

Source: Select **Roll** or **Sheet** feed media source.

Width: The width setting is unused.

Size: Select media size. Most media sizes have four similar listings for combinations of normal or expanded margins and long or short edge feed of the media. Expanded margins provide the maximum possible image area on the media. Expanded margins are indicated by the word "expand" in the media size. Normal margins provide a larger border area around the image. When media size is listed with the shorter dimension first, then the short edge of the media should be fed into the printer, and the short edge will be the leading edge out of the printer. When media size is listed with the longer dimension first, then the long edge of the media should be fed into the printer, and the long edge will be the leading edge out of the printer.

Note that this media feed direction is different than the image orientation (portrait or landscape). Set the image orientation at plot time on AutoCAD's "Plot Settings" page. Portrait orientation puts the bottom of the image at the short edge, and landscape puts the bottom of the image at the long edge of the media.

Max Plot Area: This reports the maximum plot area or image area that is available on the selected paper size. The Max Plot Area depends on the paper source (roll or sheet), margins (normal or expanded), and the media feed direction (short or long edge feed).

Destination: Choose a combination of the following items. Some may not be available for with certain printer models.

Save Paper: When selected, the printer feeds the paper only as far as the actual plot image rather than to declared plot size.

Cutter On: Activates the printer's cutter at the end of each plot. Media will be cut only after the specified dry-time has elapsed.

Take Up On: Activates the printer's paper take-up device, if available.

Graphics, Vector Graphics: For this driver, the vector graphics settings apply to both vector and raster entities.

Colors or Color Depth: Select either color or monochrome. With color, there are 255 output colors available, using AutoCAD standard 255-color palette. Under monochrome, select either 1 shade of gray (all black) or select 255 shades of gray.

Resolution (Res.): Sets the ENCAD printer resolution. For some printer models, the "600 dpi" choice is unavailable when the printer is set for "Colors". Some printer models might require ink reduction at 600 dpi. Select **Custom Properties** to set ink reduction.

Additional settings: ENCAD printers

Pen Settings: In AutoCAD 2000, pen settings such as lineweights, colors, hatching, fills and shading are handled in AutoCAD plot style pages.

Copies: Select the number of copies to plot at plot time on AutoCAD's "Plot Device" page.

Polygon mode: Polygon mode, available as pen setting in Release 14, is not available in AutoCAD 2000. Use AutoCAD commands to fill regions with a solid hatch.

Color Palette: This AutoCAD 2000 HDI Driver uses AutoCAD's standard 255 color palette.

Four-head mono: available.

Custom properties

Plot quality: Select the quality of the plot. Select from the list of predefined quality levels. Or select **Use Printer Settings** to use the quality level defined by the settings at the printers control panel. Or select **User Defined** to make detailed selection of printer parameters that affect plot quality. For some printer models, **Quality** will be limited to **Normal** for 600 dpi plots. See also: "User Defined Quality"

Plot color merge control: Controls the appearance of the intersecting elements.

Merge colors: All colors at the intersection will mix together. The intersection might be darker or a different color and may cause the ink to bleed.

Colors overwrite each other: Only, the top (last) layer will plot. Be careful that some elements may be masked by others using this mode. Using overwrite gives you the ability to mask out some elements from others. For example, you can fill an area with color, mask a part of the area with white color, and add a title in the white area to make it stand out. Use AutoCAD's DRAWORDER command to specify the plotting order.

Output format: The driver can send data to the printer in either of two printer languages, ENCAD RTL (Raster Transfer Language) or HPGL/2.

ENCAD RTL format: Your computer will do most of the processing of the plot image and send raster data to the printer.

HPGL/2. format: Vector data is sent to the printer in a vector format, and the printer does most of the image processing. HPGL/2 data format is usually much more compact and is produced more quickly by AutoCAD and the driver than the RTL format.

Raster images will plot in both ENCAD RTL mode and HPGL/2 mode. In HPGL/2 mode, the printer can randomly mix HPGL/2 vector and raster data, subject only to the limit of memory available in the printer.

If you have trouble plotting raster images in HPGL/2 mode due to these printer characteristics, plot instead in ENCAD RTL mode.

Ink controls: Ink controls are useful to prevent overinking problems. Using the controls will also cause a slight color shift on your output. Because images and media are all different, you may need to experiment until you find settings that best suits your needs.

Reduction, %: Specifies the percentage decrease for the amount of ink applied by the printer. The reduction percentage applies to all shade values. If you're printing light fills and shades, you can use the maximum amount of ink, 0% ink reduction.

However, anytime you are printing dark shades or heavy fills, you run the risk of bleeding or pooling. If this occurs, increase the amount of ink reduction. Using ink reduction can cause solid lines (particularly of lighter colors) to appear as dotted lines.

Ink limit, %: Specifies the maximum amount of ink that the printer will apply. The limit only applies to colors that exceed the limit. (In contrast, **Reduction %** above applies to all colors). The maximum of 300% means that on average, as many as 3 ink dots can be applied to each dot position. Keep the limit at 300% unless you are having ink problems.

Dry time, minutes: Specifies the time lapse before the printer actually cuts the media and drops the plot in the catch tray. Use for heavily inked plots in roll-feed mode.

Raster image controls: These controls affect plotting of raster image entities. The settings allow adjustments for different kinds of papers and inks. Also, to adjust specific images in your drawing, use AutoCAD's **IMAGEADJUST** command.

Gamma: The gamma setting affects the intensity of the midrange color values. 2.8 is a normal value to use as a start. Higher values provide more vivid colors. Lower values provide muddier looking colors.

Dot density, %: Dot density affects the number of dots and amount of ink that the printer uses to render the colors. For media on which the ink bleeds more readily, use a lower density. As a start, use 90% for plain paper, and 130% for coated paper.

About: Displays version information about this printer driver.

Heidi RIP notes

1. For RTL-only plots, test pages and calibration plots may not plot if there is insufficient computer memory. Users will get a screen message saying the plot is not possible. The problem is caused by AutoCAD not allowing enough memory to transfer these simple plots to the printer. A workaround for this is to send smaller test files. Normal AutoCAD plots will work and transfer to the printer without problems.
2. The plot progress dialog will seem unresponsive at times, especially when the driver needs to send packets of plot information to the printer. This is an Autodesk problem.
3. Autodesk's plot stamp utility does not work with AutoCAD LT 2000. LT 2000 is not designed to accept add-in applications.
4. To Enable the Plot Stamp utility for AutoCAD 2000:
   a. In AutoCAD use **APPLOAD** or the **ARX** command to load the acpltstamp.arx (located in default AutoCAD 2000 folder; i.e., C:\Program Files\ACAD2000\).
   b. The command to set up the Plot stamp is **PLOTSTAMP**. There is also a scriptable -PLOTSTAMP.

Note: After loading, it will be persistent in all future launches of AutoCAD unless you unload it explicitly with the **APPLOAD** or the **ARX** command.

ADI driver

The ENCAD ADI Driver lets you print to ENCAD printers from AutoCAD DOS and Windows Releases 12, 13, 14, and 15. This Driver uses the HP-RTL command language to send data to the printer. For details on its installation and use, refer to the user guide provided on the CD-ROM.

To print from the ADI driver:

1 Open a drawing in AutoCAD's drawing editor. Select the printer icon, print or plot from the **FILES** menu, or enter plot at AutoCAD's Command prompt to print a drawing.

2 AutoCAD will display a plot configuration dialog box. Make the selections necessary to specify your drawing. If the ENCAD driver does not appear as the name at the top of the dialog box, click the **Device and Default Selection** button, click on the **ENCAD driver**, and click **OK**.

3 From the **Plot Configuration box**, click the **Pen Assignments button** to set pens for each color in your AutoCAD drawing.

4 After all settings are to your satisfaction, choose **OK** to start the printing process.

Stopping printing

To stop the printing process while AutoCAD is sending data to the printer, abort by typing: Ctrl-C in DOS Releases 12, 13; and Escape key in Windows Releases 12, 13, 14.

Spooling

The driver uses AutoCAD dispatcher functions for all communication with the printer. As a result, the driver supports the use of an optional separate spooler. The use and configuration of a spooler is described in your AutoCAD Installation and Performance Guide.

HP-GL/2 options 4

This chapter describes the setting of printing parameters generally used with vector-based files, including palette selection, printer control, rotation, reprints, nesting, ink reduction and ink limiting.

ENCAD's implementation of HP-GL/2 supports vector/raster merge and conforms to "The HP-GL/2 and HP RTL Reference Guide, Third Edition" by Hewlett-Packard Company (Addison-Wesley, 1997, ISBN 0-201-31014-7). Please refer to this guide for detail on HP-GL/2 commands.

CAD printing modes

Your printer offers several print modes which let you make tradeoffs between speed and quality. The procedure for selecting print modes is described in Chapter 3.

The print mode you use depends on various factors, such as your drawing application, whether you're printing in color or monochrome, and what type of media you're using. Each print mode directly affects the printing speed and quality of the image you print, so you should understand the differences.

Draft or Normal modes are suited for line drawings and drawings with light solid fills, the types of images created by most CAD users. These modes are not recommended for continuous tone printing images, because bleeding may occur in areas of heavy fills or dark shading when printed with these modes.

Printing vector data

When printing vector data, you can control certain options from your software application, or you can assign control to the printer and set its options. Whether you assign control to the software (the default) or the printer depends on your personal preferences. You might choose to override software control because the software is not providing the features you want.

Accessing HP-GL/2 features

The following functions are available from the HP-GL/2 menu: palette select, printer vs. software control, rotation, reprints, nesting, ink reduction (see Chapter 3) and ink limit.

To access HP-GL/2 features

1 From the main menu, choose **Setup Menu/HP-GL/2 Options**.

2 Press **Select.**

The HP-GL/2 Options menu displays with further options.

Palette select

Palette select lets you choose either the **HP-GL/2** or **AutoCAD** palette. Both palettes allow 256 active colors with eight colors predefined. The predefined colors for each palette are shown in the following table.

	HP-GL/2	AutoCAD
Pen 0	White	White
Pen 1	Black	Red
Pen 2	Red	Yellow
Pen 3	Green	Green
Pen 4	Yellow	Cyan
Pen 5	Blue	Blue
Pen 6	Magenta	Magenta
Pen 7	Cyan	Black

To choose a palette type

1 From the main menu, choose **Setup menu/HP-GL/2 Options/Palette**.

2 Press **Select.**

3 Use the up or down arrow button to display either **AutoCAD** or **HP-GL/2.**

4 Press **Select**.

Control

Control determines whether certain printing parameters are set in the software application or overridden by the printer's front panel. Control overrides the following parameters of the HP-GL/2 header file: repeat plot (RP) and enable auto cutter (EC).

Repeat Plot: With Control set to **Printer**, the printer will ignore RP commands in the plot file and only print one plot. From the printer's front panel you can specify additional copies using the Reprints menu.

Enable Auto Cutter: With Control set to **Printer**, the printer will ignore EC commands in the plot file and will not automatically cut after each plot. From the printer's front panel, you can enable automatic cutting or initiate a command for a single cut.

✓ Do not override software control when sending merged raster/vector data to the printer.

To set control

1 From the main menu, choose **Setup Menu/HP-GL/2 Options/Control**.

2 Press **Select.**

3 Use the up or down arrow button to display either **Software** or **Printer.**

4 Press **Select**.

Rotation

The printer automatically prints an image with the long side on the paper axis. To better fit images and save media, you can use the Rotation option to turn vector files counter-clockwise 90 degrees at a time. If the rotation specified won't fit on the media or contains raster images, it will not be rotated. When the Rotate value is set to **Auto**, the algorithm will automatically rotate the plot if it determines that the rotation will save media (regardless of whether Nesting is enabled). If Rotate is set to **0**, the plot will not be rotated. The Control function does not override the RO command in the plot file.

Note: Rotation is supported for HP-GL/2 files only. It is not supported for RTL files.

To rotate the image

1 From the main menu, choose **Setup Menu/HP-GL/2 Options/Rotation**.

2 Press **Select.**

3 Use the up or down arrow button to display the desired rotation angle (0, 90, 180, 270, Auto).

4 Press **Select**.

Ink reduction

Ink reduction lets you reduce the percentage of ink laid down by the printer. This feature no effect on continuous tone images. It is especially useful for images with large amounts of printed area and helps to avoid bleeding or oversaturating the media. It does, however, change the appearance of colors, so you may want to run a small test print.

To set ink reduction

1 Choose **Setup Menu/HP-GL/2 Options/Ink Reduct**.

2 Press **Select.**

3 Use the up or down arrow button to display the desired reduction percentage **-0, 12.5, 25%, 37.5, or 50%**.

4 Press **Select**.

Reprints

You can print up to 99 copies of a specific vector file. When Reprint is set to 0, only one image is printed.

To make multiple prints

1. From the main menu, choose **Setup Menu/HP-GL/2 Options/Reprints**.
2. Press **Select.**
3. Use the up or down arrow button to display the desired number of reprints (0 to 99).
4. Press **Select**.

Nesting

Nesting allows the user to save media by printing multiple plots along the horizontal width of the media. This feature makes the most efficient use of consumables and reduces the time required to print multiple plots.

When nesting is active, HP-GL/2 plots will be stored within the printer, accumulating in a *nest*. Printing will only begin when a nest becomes full, when a nesting timeout occurs, if printer memory is exhausted, or when a plot that is incompatible with the current nest is received.

A nest is full when the printer determines that no further jobs can fit across the page.

Nest timeouts are governed by the Nest Time parameter, which is set via the printer's front panel.

If the printer runs out of memory, the current nest will be printed immediately, so that memory may be reclaimed for use by new plots.

An incompatible plot is either a non-HP-GL/2 plot or an HP-GL/2 plot which has different job characteristics than the current nest, such as quality, dpi, or margins.

If any of the following plot parameters are different between one plot and the next, the last plot will be incompatible with the current nest, causing the nest to begin printing immediately.

Parameters which are monitored for Nest compatibility:

- Print quality;
- Number of passes;
- Print direction;
- Speed;
- Color mode;
- DPI;
- Dry time;
- Margins;
- Wipe on/off; and
- Media Save.

The following parameters will not affect nesting:

- Ink limiting;
- Replots;
- If Auto Rotation is enabled, then the nesting algorithm is free to rotate the plot if it determines that doing so will save media. Plots are sequentially fitted across the page from right to left; and
- The HP-GL/2 EC command can be used to control cutting. If any plot in a nest has the cutter enabled, the plotter will cut after the nest.

To enable nesting

1 From the main menu, choose **Setup Menu/HP-GL/2 Options/Nest Enable**.

2 Press **Select.**

3 Use the up or down arrow button to display **Nest On** or **Off.**

4 Press **Select**.

Nest time

Nesting Time is the amount of time the printer waits for the next plot to fill the current nest.

The printer will begin printing whenever the printer has been idle for the specified time interval. The time is reset whenever a print job is received.

To define nesting time

1 From the main menu, choose **Setup Menu/HP-GL/2 Options/Nest Time**.

2 Press **Select.**

3 Use the up or down arrow button to display the desired nest time.

4 Press **Select**.

Ink limit

The printer can assign an ink limit to polygon fills and wide vectors. This helps prevent bleeding when printing on inexpensive inkjet media. The default for this option is **On**. If you are using high quality media, this option may not be needed and can be turned off.

To enable the ink limit

1 From the main menu, choose **Setup Menu /HP-GL/2 Options/Ink Limit**.

2 Press **Select.**

3 Use the up or down arrow button to display **ON.**

4 Press **Select**.

HP-GL/2 Test File

To assist in diagnosing potential problems with your printer, we have placed an HP-GL/2 test file in the printers ROM memory. Settings for Ink Reduction and Ink Limiting have no effect on this file. All other printer options such as Number of Passes and Carriage Speed are available.

To print the test file

1 Press **Utility Menu/Service Menu/Test Print**.

Installing additional memory A

The printer ships with 32 MB of DRAM and is upgradable to a maximum of 128 MB. Additional memory helps to free the host computer more quickly.

Acceptable DIMM sizes

Printer memory may be upgraded by installing 168-pin 60 nanosecond (or faster) Micron EDO DIMMs that are 32 bits wide. (The printer does not use parity bits.)

The printer will accept 32MB, 64MB, or 128MB DIMMs. Recommended DIMMs are as follows:

32MB	MT4LDT464AG-6X	64MB	MT8LD864AG-6X
	MT4LDT464AG-6		MT8LD864AG-5X
	MT4LDT464AG-5X		
128MB	MT16LD1664AG-6X		
	MT16LD1664AG-5X		

DIMM installation

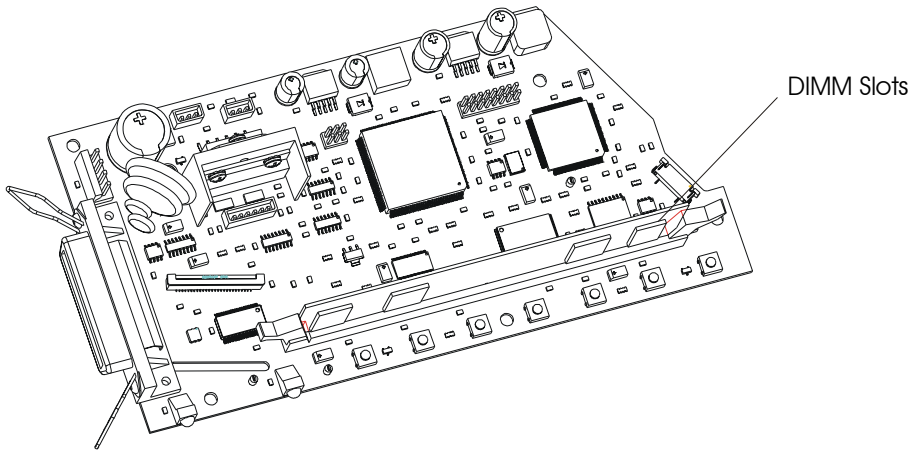
The DIMMs are located on the MPCB inside the right cover. The MPCB comes with one 32 MB DIMM installed on the board. The following procedures describe how to remove the right cover, remove any currently installed DIMM(s), install new DIMM(s) and replace the cover. You will need a #2 Phillips screwdriver to complete the procedures.

! ALWAYS UNPLUG THE POWER CORD BEFORE BEGINNING.

! To avoid static damage to the printer, never touch the circuit board or its components without first touching the bright metal portions of the printer. Static damage is more likely when the relative humidity is low. If possible, wear a grounding strap when touching the circuit board.

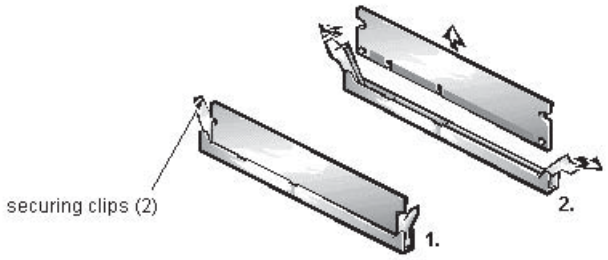
To remove the right cover

1 Disconnect the power and the interface cables.
2 Remove the printer's top cover.
3 Remove the three screws which attach the cover to the right plate.
4 Move the right cover, being careful to clear the parallel port on the back of the unit.



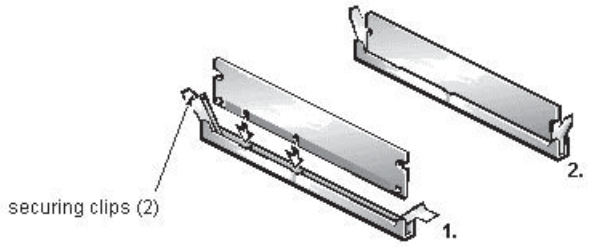
To remove the DIMMs

1 Facing the top of the DIMMs, push the side clips gently to the outside (away from the DIMM) until the DIMM is released from the socket.
2 The DIMM should pop up. Lift the DIMM straight up out of the socket.



To install the new DIMM

1 Insert and slowly push the DIMM until the two side clips snap into place. Make sure the DIMM is fully seated. Close the securing clips to lock the DIMM into the socket.



2 Reinstall the right cover and top cover.

Menu tree B

This section contains an overview of the printer's menu tree. In the text that follows, items in *italics* indicate that selecting the option gives access to a menu with further options. Items in **bold** are the default option.

Shortcut Menu

Cut	Cuts media
Prime	Prints the prime pattern.
Feed Media	Feeds media backward or forward.
Access Cartridge	Moves cartridges to the center of the platen for replacing cartridges and the cutter.
Pause	Pauses printing until the Select button is pressed.
Clean (C, M, Y, K)	Causes the selected cartridge to expel ink into the service station.

Main menu at a glance

Main Menu

Setup Menu	*Print Modes*
	Paper Options
	HP-GL/2 Options
	User Setup
	Ink Options
Utility Menu	*Color Calib*
	Db Calib
	Paper Calib
	Display Settings
	Print Settings
	Service Menu
	Open Jets

Setup menu at a glance

Setup

Print Modes

Color Mode	**Color**, 4BGray, 4BMono, 1BGray, 1BMono
Quality	super, draft, normal, best
DPI	300, **600**

Paper Options

Supply	Sheet, **Roll**
Media	**All**, US Eng, US Arch, ISO A, ISO B, Special, MET OVER A, Graphics, US All, Met All
Margins	**Normal**, Expanded
Auto-Cut	**On**/Off
Save Media	**On**/Off
Auto-Wipe	On/**Off**

HP/GL2 Options

Palette	**HP-GL/2**, AutoCAD
Control	**Software**, Printer
Rotation	0, 90, 180, 270, **Auto**
Ink Reduct	**0%,** 12.5%, 25%, 37.5%, 50%
Nest Enable	On, **Off**
Nest Time	**30 sec**., 1 min., 2 min.
Reprints	**0** - 99
Ink Limit	Off, **On**

User Setup Menu

Sel User	1-8, **1**
Save User	1-8, **1**
Units	**English,** Metric
Language	**English**, German, French, Italian, Spanish, Portuguese, Japanese

Init Settings

Print Settings

Ink Options Menu

Ink Preheat (C, M, Y, K)	-3...+4 for each cartridge, **0** is the default
Dry Time	**0**, 0 to 1 minute in 5 second increments, 1 to 60 minutes in 1minute increments
Interval	**30 sec**, 10 sec, 2 min, 1 min

Setup menu

Print Modes	provides access to options for color, quality, and DPI (resolution).
Paper Options	provides access to media options.
HP-GL/2 Options	provides access to options for setting HP-GL/2 features.
User Setup	provides access to options for defining and saving user settings.
Ink Options	provides access to options for setting ink preheat and dry time.

Print Modes

Color mode	provides access to a further menu to select **color (default),** mono-chrome, grayscale or printing with 4 black cartridges.
Quality mode	provides access to a further menu to select the print mode.
DPI	provides access to a further menu to select the resolution.

Paper Options

Supply	provides access to a further menu to select the paper feed mode: **roll**, sheet**.**
Media	provides access to a further menu to select the media standard: **All (default)**, US Engr, US Arch, ISO A, Met over A, ISO B, Special, Graphics, US All, Met All.
Margins	provides access to a further menu to change the available plot area based on the margin type elected. Select **Normal (default)** or Expanded margins.
Auto-Cut	provides access to a further menu to turn Auto-Cut Off or **On (default)**. When On, the printer cuts the media after printing is complete.
Save Media	provides access to a further menu to turn Save media **On (default)** or Off. When set to On, printing will stop at the end of the image rather than scrolling out the full paper size.
Auto-Wipe	provides access to a further menu to turn the Auto-wipe function **Off (default)** or On. When on, the cartridges are wiped during printing.

HP-GL/2 Options

Palette	provides access to a further menu to select an AutoCAD color palette or a generic HP-GL/2 palette.
Control	determines whether certain printing parameters are set in the soft-ware application or overridden on the printer's control panel.

Rotation	provides access to a further menu to enable rotation and set the rotation angle.
Ink reduct	provides access to a further menu in which to set the percentage by which to decrease the amount of ink emitted to help prevent bleeding or pooling of ink. Options are **0**, 12.5, 25, 37.5, and 50.
Nest enable	provides access to a further menu to turn nesting on or **off**.
Nest time	provides access to a further menu to define the amount of time the printer waits for the next plot to fill the current nest.
Reprints	controls the number of copies that are printed.
Ink limit	limits the amount of ink that is used in polygon fills and wide vectors.

User Setup

Sel user	provides access to a further menu to select a previously saved user configuration. **Default = User 1.**
Save user	provides access to a further menu to save the current printer configuration to the selected user number. **Default = User 1.**
Units	provides access to a further menu to choose the calibration units: **English (default)** or Metric.
Language	provides access to a further menu to select the language used for the display. Choose from **English (default)**, German, French, Italian, Spanish, Portuguese, Japanese.
Init settings	returns the printer to its default settings. All previously saved options are erased.
Print settings	prints the current printer settings.

Ink Options

C, M, Y, K preheat	provides access to a further menu in which you can set the ink preheat value for each cartridge.
Dry time	provides access to a further menu to select the dry time in the range of **0 seconds (default)** to 1 minute, adjustable in 5 sec. increments, or 1 to 60 minutes adjustable in 1 minute increments.
Interval	provides access to a further menu to select time intervals for pigment ink spitting. This helps keep ink flowing correctly in pigment cartridges.

Utility menu at a glance

Color Calib	
Print Test	
C, M, Y Vert	
C, M, Y Horiz	
Db Calib	
Slow Db Test	
Slow Db	0, 1, 2, -2, -1
Fast Db Test	1-12
C, M, Y, K Fast Db	
Color Db Test	
Paper Calib	
Calib XY	
Paper Axis Test	
Paper Axis	
Display Settings	On, Plot
Print Settings	
Service Menu	
About	
Disp Cart. Info	
Print Cart Info	
Test Print	
Diag. Menu	
Open Jets	
C, M, Y, K ###	**On**, Off
Print Jet List	
Clear Lists	

Utility menu

Color calib	provides access to further menus for printing the color calibration test pattern and for entering values determined by examining the test patterns.
Db calib	provides access to a further options for the slow, fast, and color deadband tests.
Paper calib	prints a set of vertical marks to calibrate the paper axis.
Display settings	displays information such as paper and page width and height.
Print settings	prints the current printer settings.
Service menu	for use by ENCAD technical support only.

Open Jets	provides access to a menu for setting manual jet compensation for each cartridge.

Color Calib

Print test	prints a test pattern that you can use to make adjustments when replacing cartridges.
C, M, Y vert	lets you enter the number which corresponds to the best vertical alignment in the test pattern for the C, M, and Y cartridges.
C, M, Y horiz	lets you enter the number which corresponds to the best horizontal alignment in the test pattern for C, M, and Y cartridges.

Db Calib

Slow Db test	prints the slow Db test pattern.
Slow Db=	provides access to a further menu in which you can adjust the slow deadband velocity compensation for each cartridge by +/-2.
Fast Db test	prints the fast deadband test.
C, M, Y, K fast Db=	provides access to a further menu in which you can adjust the slow deadband velocity compensation for each cartridge from 0 - 19.
Color Db test	provides access to a further menu in which you can print the color deadband test pattern and set deadband velocity compensation for each cartridge.

Paper Calib

Calib XY	provides access to a further menu in which you can set this function **On (default)** or Off.
Paper axis test	prints the paper axis test pattern.
Paper axis	provides access to a further menu in which to enter values determined by examining the paper axis test pattern.

Display Settings

Displays the current printer settings.

Print Settings

Prints the current printer settings.

Service Menu

About	provides information about the printer's firmware version, RAM, and ID.
Disp Cart Info	provides information about the type and color of ink in each cartridge stall, and the extent to which the cartridge is used. Cartridge usage is displayed in milliliters.
Print Cart Info	prints information about the type and color of ink in each cartridge stall, and the extent to which the cartridge is used.
Test Print	automatically prints a test file stored in ROM on the printer. Use only under direction of technical support.
Diagnostics Menu	provides access to a further set of menus for performing diagnostics (tech support only) and for printing the color test.

Open Jets

Open Jets (C, M, Y, K)	lets you manually turn off defective jets.
Clear Lists=	clears the open jet compensation list for the selected cartridge.
Print Jet List	prints the open jet compensation list.

Technical information C

MEDIA TYPES:
Bond, Mylar, Vellum, Premium Matte.

MEDIA ROLL PARAMETERS:
Inner roll core: 2"
Max. outside roll diameter: 4"
Max. roll width: 36"

RESOLUTION:
600 x 600 dpi
300 x 300 dpi

FEATURES:
Rollfeed with cutter
8 user-savable settings
Power PC 33 MHZ processor
ink cartridges (4)

ACCURACY:

Dot Placement: 0.0017 +/- 0.0008 (tolerance non-accumulative)

Paper advance resolution: 1/4800th of an inch

Cut sheet feed accuracy, edge shift:

+/- 0.065 inches as measured over 36 inches

BUFFER:
One 32MB Micron EDO DIMM standard.

User upgradeable to 64 or 128 MB
60 ns or faster, ENCAD approved.

INTERFACES:
Bidirectional Parallel (IEEE 1284)
100BaseT (optional)

POWER:
100-264 VAC 43-67 Hz

Consumption:
20 W Idle
50 W Typical
70 W Maximum

OPERATING ENVIRONMENT:
65° - 85°F (18°- 29°C)
20-70% RH, Non-condensing

STORAGE ENVIRONMENT:
40° - 95°F (5°- 35°C)
5-80% RH, Non-condensing

CERTIFICATIONS:
Safety
CSA, CSE/NRTL,
(equivalent to UL1950)
TUV GS
EN 50 082-1
EN 60 950
UL1950
NOM-019-SCFI-1993
IEC 950
AS/NZS 3260
EMI
FCC Class B
CSA C108.8
EN 55 022 Class B
CISPR 22- Class B
AS/NZS 3548
GB 9254-98

Made in the U.S.A.

DIMENSIONS:

Height (with stand) (platen above floor)	48" (1210 mm)
Width	54" (1370 mm)
Depth	28" (710 mm)
Weight printer and stand	70 lbs. (31 kg)
Print width	11" min. to 36" max. printable

Error messages D

A yellow LED on the control panel lights to indicate error conditions. When the yellow LED lights, check the display for messages which will help you determine the status of the printer and possible corrective action to take.

Cartridge errors

The printer automatically performs tests on the cartridges and uses the information to improve image quality, monitor cartridge life, and update the user with system status. Some tests are performed between prints and require no user input, while others require user input.

The following table shows cartridge-related error messages.

Error Message	Corrective Action
Unrecognized cartridge	Be sure the cartridge is the appropriate ENCAD cartridge for your printer model. Your printer will not work with cartridges from other models. Remember, the printer is reading the value programmed into the chip on the cartridge, it is not actually detecting the cartridge type. Replace the cartridge if necessary.
Cartridge end of life attained.	Replace cartridge. You can check cartridge status by choosing Disp Cart Info from the Service menu. End of cartridge life is indicated as 180ml.
Unrecognized ink type.	Be sure the cartridge is the appropriate ENCAD cartridge for your printer model. Your printer will not work with cartridges from other models. Ink type information is stored on the cartridge chip. If you are using a new type of ink which has been introduced since you purchased your printer, you will need to upgrade the printer's firmware to accommodate the new ink type. Check ENCAD's web site at www.encad.com for instructions.

When the Unrecognized Cartridge error is displayed, use the following procedure to clear the error condition.

To clear unrecognized cartridge errors

1 Press the Up arrow button. Continue to press the Up arrow button until the display shows which cartridge is in error.

2 Press the **Menu** button, then press the **Shortcut Menu** button**.** This will move the carriage out of the service station where the cartridges can be accessed.

3 Replace the unrecognized cartridge with a valid cartridge. Once the printer detects the valid cartridge it will automatically move back to the service station and clear the error condition. If the carriage does not return to the service station, the printer still does not recognize the cartridge.

Memory Errors

If the "Insufficient raster memory" message displays, press the Reset button to clear the message and abort the print job.

Troubleshooting E

This appendix contains valuable information to help you solve the most common printer problems. The problems addressed are divided into these types:

- Printer health
- Print quality
- Data transfer
- Application software

Troubleshooting quick list

Many common problems can be solved by checking for just three items:

- Is the printer connected to a good power source?
- Does the printer driver software match the emulation selected on the printer?

Isolating problems

You can quickly isolate problems to either the printer, computer/printer interface, or application software using the following procedure:

1. Turn the printer OFF, then ON.
2. Load media, then run a prime to assure that all jets fire.
3. Perform a color calibration.

If your printer fails during any of the above steps, call your dealer or call Technical Support. Otherwise, continue with the steps that follow.

4. Send a sample print directly to the printer through the parallel port. For example, on Windows 95/98, type: copy /b <filename>.rtl lpt1. On Windows NT type: print /d:lpt1 <filename>.
5. If your computer is running on a network, login and copy the sample file to the printer over the network.
6. If steps 4 or 5 fail, repeat them using another computer.

   If any of these steps fail, your printer may not be correctly connected to your computer and/or network. Contact your network administrator or your dealer. Otherwise, continue with the steps that follow.

7. Print directly to the printer from several software applications.
8. If you are networked, login and try printing from several software applications.
9. If steps 7 or 8 fail, repeat them using another computer or remove from the network and test standalone.

If one application fails, but others print successfully, that can indicate a problem with a specific software package. Call technical support of the failed product. If all the applications fail, determine what they have in common; for example, a RIP box or Windows driver. Call technical support of the particular vendor.

Printer Health

Printer will not turn on

Make sure the power cord is securely attached to the printer and plugged into an operating outlet.

Make sure the power switch is turned on.

Printer intermittently reboots

Clean and reseat memory DIMMs.

Replace memory DIMMs. (See Appendix A.)

Check that power is coming to the printer.

Display does not come on

Check that the power cord is plugged in and the printer switch is turned on.

Printing doesn't start immediately when a file is sent

If you are using a Windows application, be sure the Print Manager is OFF. Turn off the Print Manager with the ENCAD Windows driver.

File will not print

If you are using a parallel cable, be sure it meets the specifications of IEEE 1284.

Check your electrical connections.

From your software application, print to a file and send the file to the printer in DOS using the DOS Copy command. At the DOS prompt, type **COPY /b *filename portname*** (LPT or COM port). Alternately, use the GO.EXE program which can be downloaded from ENCAD's website (http://www.encad.com). To print the file, type **GO *filename***.

In Windows 95/98, you can use the EFPU, available on the System CD.

Slow printing under Windows

Windows applications naturally print slower than DOS applications. Be sure the Windows Print Manager is turned OFF.

Automatic cutter doesn't work or tears the paper

Make sure the **Auto-Cut** option is set to **ON**.

Make sure **Media Supply Type** is set to **Roll**.

Make sure the cutter is properly installed. (See Chapter 1.)

TURN POWER OFF and clean the inside of the black belt using alcohol and a lint-free cloth. Push the carriage back and forth to access all areas of the belt. Manually push the carriage all the way to the left to force the cutter to drop. Turn power on.

If the cutter is worn, replace it. You should replace the cutter after every 200 plots (more or less, depending on the type of media used).

Carriage jams

Check for paper jams or blockage.

Be sure the service station is lowering. If it does not lower, push it left and down, or the cutter will not disengage.

Carriage axis failure

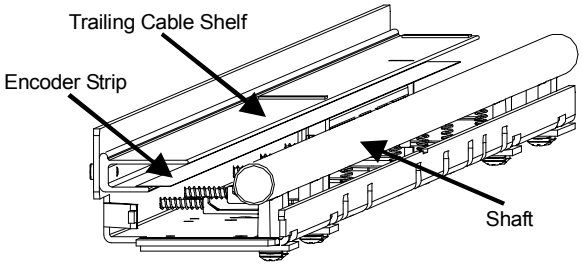
This may be caused by using matte paper which may curl and cause carriage axis failure. Be sure to use inkjet quality media.

An obstruction in the path of the carriage assembly is hindering carriage movement. The obstruction may or may not be visible. Other common causes include dirty encoder strip, media interference, worn carriage bushings, cutter malfunction, and loose trailing cable connections.

After checking the following items, reboot the printer to ensure proper operation.

Note: If the error recurs, observe whether the carriage is in the same or different location.

If the carriage is in the same spot, check the encoder strip for visible damage (clear plastic strip under the trailing cable tray and above the belt) Refer to the figure which follows.

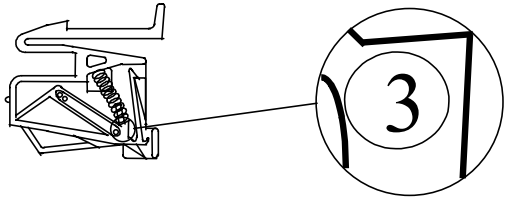


The Encoder Strip is a clear plastic strip directly behind the shaft under the trailing cable shelf.

MAKE SURE POWER IS OFF BEFORE PERFORMING THIS STEP. Verify that carriage movement is free and smooth by turning the power off and moving the carriage from one end of the shaft to the other (make sure there is no binding and that nothing is blocking the carriage movement).

Clean the top and bottom of the encoder strip using a cotton swab and distilled water (let it dry completely, approximately 30 minutes, before trying to operate the printer).

Remove the cutter from the left side of the carriage and check it for visible damage. Make sure cutter version 3 (or newer) is installed (see the figure which follows).



Check the shaft for visible damage (carriage moves back and forth on it during operation).

Clean the shaft with a lint free cloth and isopropyl alcohol (let it dry completely before trying to operate the printer).

Check the belt for visible damage such as fraying and pieces coming off it.

Check the trailing cable (cable that moves during printer operation) for visible damage.

Check whether the idler assembly (located at the left end of the belt) moves freely.

Check whether it is cracked or broken.

Ink cartridges do not fire properly

Be sure that cartridges and the service station are cleaned periodically to maintain good print quality. (See the Maintenance Guide.)

Cartridges may wear out after extended use. Try replacing the cartridge.

Store cartridges in a sealed container at room temperature when not in use for extended periods of time.

Make sure the protective tape is removed from the cartridges.

Remove the cartridge and reinstall it, or clean the electrical contact on the cartridge and carrier. Be sure it is clean and dry. Be sure the cartridge is seated properly.

Various nozzles are clogged or stop firing

Remove, clean, and reinstall cartridge. Do not use alcohol on the jet area.

Clean service station; clean cartridge again.

Clean cartridge electrical contacts using a cotton swab moistened with water. Dry contact. Do not use acetone or any other harsh cleaner as this may cause damage to the flex cable.

Nozzle may have failed. Replace cartridge.

Check to see whether spray from printing has contaminated the flex contact. Remove the cartridge and wipe the carriage flex and cartridge flex with a cotton swab moistened with water.

Ink spills on the flex cable

Flex cable refers to the copper contacts on the carriage where the cartridge seats. Clean the flex cable gently with a cotton swab moistened with water. Do not use acetone or any other harsh cleaner as this may cause damage to the flex cable.

Printer settings are lost when printer is turned off or rebooted

Be sure to save your printer settings to a User number. (See "Saving User Settings" in Chapter 2.) When you are ready to print, select the User number that you saved.

What if I need a firmware upgrade?

You can download firmware upgrades from ENCAD's Internet web page (www.encad.com).

Firmware Download Procedure (Upgrade/Printer Refresh)

You can use the ENCAD File Print Utility (EFPU) to download new firmware to your printer. The EFPU can be found on the System CD.

For Windows:

1. Using the EFPU, send the XXXX.ROM file to the printer. Approximately 20 - 40 seconds later, the error and power LEDs will alternately flash, indicating the download was successful. After a one second delay, the printer will automatically reboot. The printer should come up normally. Verify the new firmware revision by sequencing through **Utility Menu/Service Menu/About**.
2. If the error and power LEDs do not flash, reboot printer and reseat parallel port connection. Resend the .ROM file to the printer.

Print Quality

Many of the print quality concerns can be resolved by priming, cleaning, and calibrating the cartridges. When this is the case, "clean, calibrate, or replace" is indicated with other solutions. Refer to the following chapters for details:

Clean - see Maintenance Guide

Calibrate - see Chapter 1

Replace - see Installation Sheet.

No print appears

Check that tape has been removed from the printhead of the cartridge.

White lines or large gaps on print or portions of characters missing

Clean, calibrate, or replace cartridges.

Make sure the media feeds freely.

Overall print quality is poor

Clean, calibrate, or replace cartridges.

Make sure the printer is positioned on level ground.

Use a higher quality print mode.

Be sure you are using genuine ENCAD inks and media.

Cartridge spits small amounts of ink on paper

Nozzle plate may be flooded. Try replacing the cartridge. Adjust cartridge preheat as described in Chapter 2.

Streak marks

Clean the service station at least once a week, or more often, depending on the number of prints you are running. (See the Maintenance Guide.)

Clean, calibrate, or replace cartridges.

Line drawings exhibit bleeding

Be sure you are printing on the coated side of the media. Load cut sheet media so that the notch is on the side closest to the carriage. Roll feed media should be loaded so the coated side is on the outside.

If your application software permits, use gamma correction to lighten the color.

Colors print as monochrome

Be sure the print mode mode is set correctly. To change a specific drawing from monochrome to color or vice versa, you must switch the print mode setting and re-transmit the file.

Ink smears after removing the print

Be sure the ink is dry before removing the print. If you are printing area fills, you may want to set the Dry Time option. (See "Setting a Dry Time" in Chapter 2.)

Smudged or dark characters

Be sure you are using the correct type of paper for the application.

Make sure the paper is straight and unwrinkled when loading it into the printer.

Clean, calibrate, or replace cartridges.

Try a different print mode.

Improperly formed or misaligned characters

Calibrate cartridges.

Color problems or shadowing

Calibrate cartridges.

Excessive graininess

Perform color deadband compensation. Refer to Chapter 1.

Ghosting

The temperature of the print cartridge affects the size of the dots it prints. When the cartridge is warmer it produces slightly larger dots than when it is cool. Several things affect the temperature of the cartridge including the ambient temperature, the number of dots that have recently been printed and the cartridge heater circuit. This change in temperature and subsequent spot size causes what is referred to as “ghosting” or “parasitic suppression”. Ghosting can occur when printing unidirectional if their is an area in the image in which the cartridge is not firing (i.e. a white box within a filled area). Since the cartridge cooled down while it wasn’t printing, a light area can appear adjacent to the non-printed area. This light area is “ghosting”. By using the cartridge heaters to warm the cartridge in these non-printed areas, the change in temperature and therefore “ghosting” is minimized. Refer to the figure below which illustrates cartridge heat vs. spot size.

STEPS TO MINIMIZE GHOSTING (PARASITIC SUPPRESSION)

1. Use the preheat function and set the heat to 4 on all the cartridges.

   On the main menu, press **Setup Menu/Ink Options/Ink Preheat Menu**. In the **Ink Preheat** menu you will see **Cyan - Preheat, Yellow - Preheat, Magenta - Preheat,** and **Black Preheat**.

   Go into first preheat function and adjust the value to 4 and press OK.

   Continue this with the three remaining preheat functions.

2. Choose a bi-directional print mode.

Colors are not correct or sections of print missing

Clean, calibrate, or replace cartridges.

Check ENCAD's WEB site or bulletin board and download the latest Windows drivers. These drivers have calibrated color tables which act as a filter to your file and make the colors come out closer to what is on your computer screen. If you are using a third party RIP, contact the RIP vendor to determine whether they have updated their color tables to work with ENCAD inks. Some RIP vendors that have already updated include EFI, Amiable, Yarc, Vivid Image, Pisa, and Harlequin. If the vendor's files are not yet updated, use the ENCAD Windows drivers.

Image is the wrong size

Be sure the dpi setting (300 or 600) matches the resolution of your image file. See Chapter 2 for instructions.

Print contains only partial image

Check the settings of the **Margins** option. When Margins are set to **Normal** (the default), the print area is smaller than when Margins are set to **Expanded**. Try setting the **Margins** option to **Expanded** to make the print area larger.

The printer may not have correctly sized your media. Reload the sheet.

The printer automatically prints in portrait orientation (X axis = paper axis). If you rotated the image in your application to save paper, set the paper size to the next larger size (for example, if you are printing a C size image, choose D size paper). Be sure to set **Save Media** to **ON**. This stops the printer from scrolling the full paper height.

Jagged vertical lines

Clean, calibrate, or replace cartridges.

If these suggestions fail, call ENCAD Technical Support for instructions on cleaning the encoder strip and performing deadband calibration.

Splotchy area fill

Try using **Best** mode. If the problem persists, clean, calibrate, or replace cartridges. Adjust cartridge preheat as described in Chapter 2.

Excessive banding in area fills

Consistent banding is generally a hardware problem; inconsistent banding is generally a software problem.

Use specially coated inkjet media. ENCAD provides a full line of high quality inkjet media.

Change the **Print Mode** option to **Best**. (See "Print Modes" in Chapter 2.)

Clean, calibrate, or replace cartridges.

Adjust cartridge preheat as described in Chapter 2.

Portions of lines are missing

Clean, calibrate, or replace cartridges.

Clean service station; clean cartridge again; repeat prime.

Clean carriage flex cable and cartridge electrical contacts; repeat prime. Do not use alcohol, acetone, or other cleansers. Use a cotton swab moistened in distilled water. Use tap water if distilled water is not available.

Poor vertical or horizontal line quality

Perform color calibration. (See Chapter 1.)

Data Transfer

Printer doesn't generate a print

Be sure your printer is connected to the port to which you are sending the file.

If you are printing over a network, you will need to determine whether the problem is in the network. Try connecting the printer directly to your computer and send the file again.

Parallel printing doesn't work

Some UNIX workstations have difficulty communicating with the printer using a parallel connection. Try connecting the printer to the network using a network interface box.

To ensure the highest quality and reliability of the data that is sent to the printers, the IEEE standard 1284 parallel cable is required to be used when utilizing the parallel port on the printers.

This standard uses shielded twisted pair technology that reduces noise and increases performance at higher transfer speeds.

Be sure that your parallel cable does not exceed the maximum of 10 ft.

Try using another parallel cable. Be sure that it is securely connected.

Problems connecting to a Macintosh workstation

Use the Macintosh chooser level drivers provided by our third-party developers. These drivers generally provide their own cable or parallel cards. One of these drivers is PowerPlot by GDT Softworks (refer to the Software Support Matrix). This is a raster driver similar to MacPlot Raster, but it includes a cable that converts serial to parallel. This cable is connected to the Macintosh's printer port (serial) and to the printer's parallel port.

Parallel Connection

Use the Creative Solutions Centronics board which is available from a Macintosh computer store.

No output when printing from Unix

If you encounter "no output" problems when printing from Unix, try the following:

1. Check the printer hardware.
    - Check that the printer is plugged in and turned on.
    - Check that the cable is connected to the port on the printer and the port on the workstation or server.
        - Check that the cable is the correct cable and is not defective.
        - If the printer is connected to a serial port, make sure the cable supports hardware flow control. A NULL modem adapter needs to support this.
        - Check that hardware switches for the port are correctly set.
        - Run the demo print available from Utility Menu/Service Menu/Test Print to assure that the printer is functioning.
2. Verify network connections.
    - On a print client or server, type *ping system-name* and press Return. This command checks that the network link between the print server and print client is set up correctly.

      If the message says the system is alive, the network is functioning. The message also tells you that either a naming service or the local /etc/hosts file has translated the host (system) name entered into an IP address. If it hasn't, you must enter the IP address.

- If you get a “not available” message, check the following:
  - How is NIS or NIS+ set up at the site?
  - Do you need to take additional steps to allow the print servers and print clients to communicate with each other?
  - If your site is not running NIS or NIS+, have you entered the IP address for the print server in each client’s /etc/hosts file and entered all print client IP addresses in the /etc/hosts file of the print server?
  - Check that the port monitor is configured correctly on the print server.
  - Check that the network listen services are registered with the port monitor on the print server.

3. Check the LP print service.
   - On both the print server and print client, make sure the LP print service is running.
   - On both the print server and client, make sure the printer is accepting requests.
   - On both the print server and print client, make sure the printer is enabled to print requests.
   - On the print server, make sure the printer is connected to the correct serial port.
   - On both the print server and print client, make sure the printer is configured properly.
   - On the print server, make sure the printer is not waiting because of a fault.
   - Make sure the printer is not set up as a login terminal.

Application Software

Isolating a problem to your software

Sometimes printing problems are application software-specific.

Try printing the test print available from the Service menu. If it prints correctly, the printer’s health is probably good.

Try printing a simple file from your application or from another application. If this prints correctly, the problem may be with your software.

If you are using a Windows application and the file does not print from Windows, try printing a file from DOS. If this prints correctly, your problem may be with your Windows driver or Windows setup.

Difficulty generating prints ranging from A to D size

Many software applications limit the maximum print size to “C” or “D” size due to the way that they map their internal coordinate system to memory.

Some applications which limit maximum print size are listed below:

- Microsoft Word: 22 x 22”
- Lotus 123: 17 x 22”
- CorelDRAW: 30 x 30” (TIFF files are limited to 11 x 17”)
- Microsoft Project: 36 x 61”
- Micrographx Designer: 68” maximum
- Ashlar Vellum: 101” maximum

Windows GDI Print Length Limitation

The Windows operating system uses a Graphics Device Interface which limits printing to 16,000 pixels. The paper length at 300 dots per inch is equal to 16,000 divided by 300. What all this means is:

There is a limit of 53" for vector data in Windows 95. For raster images, the limit is 109". These limits are imposed by the Windows 95 Graphics Device Interface (GDI). The limitation of 53" is based upon a 16,000 pixel limit for a vector. The printer has a resolution of 300 Dots Per Inch (DPI). To find the largest size divide 16,000 by 300 to get the size in inches. (53.333"). The limitation of 109" is for the size of the digital word that is sent between the application and the driver. This word is 16-bits long. The maximum positive value that can be placed in a 16-bit word is 32,767. Therefore, by dividing 32,767 by 300 we get 109.223". Many Windows applications limit the maximum print size to "C" or "D" size due to the way that they map their internal coordinate system to memory. Some applications which limit maximum print size are listed below:

Microsoft Word:	22" x 22"	Micrographx Designer:	68" maximum
Lotus 123:	17" x 22"	Ashlar Vellum:	101" maximum
Microsoft Project:	36" x 61"	Adobe PageMaker:	42" x 42"
QuarkXPress:	48" x 48"	CorelDRAW:	30" x 30"*

*(TIFF files are limited to 11" x 17")

*Note: This is a 30" x 30" page size, and is relevant to Corel 5.0 applications only. CorelDRAW 6 and later versions are now capable of supporting page sizes beyond 36 x 36 inches to a maximum of 150 feet x 150 feet. Due to a limitation in the HP DesignJet 650C Series printers driver, the maximum attainable page size is approximately 55 x 55 inches. Larger page sizes may be attainable if the resolution in the driver is lowered. This limitation also applies to the HP 750C printer, and 16 bit printer drivers under Win95. Programs that use their own internal drivers that bypass the Windows operating system are not real common but they do exist. Also, other driver programs or RIPs were created specifically to achieve special capabilities including: increased speed, scaling, color correction / calibration, extended print length, etc.

These programs don't use their own O/S (operating system). But, they create certain conditions that bypass those particular areas of the Windows O/S limitations. Some programs with internal drivers to print from include: AutoCAD, MicroStation, FlexiSign Pro, PosterShop, CactusJet, etc. External printer driver RIPs are made by Pisa, Fiery (EFI), ZenoGraphics, Intelligent Systems, Wasatch, etc.

It should also be noted that this limitation is only because of the GDI limitations. ENCAD printers do not have this limitation. Length limitations are a function of software or RIP parameters. Any conflicts that do not use the GDI interface should be directed to the software vendors.

Adobe Illustrator 10 - Unable to print

Due to problems in the application, the Windows driver cannot be used to print from this application in 600 DPI mode. To get around this, you can open the file in Adobe PhotoShop and print from there. Illustrator 10 prints 300 DPI files correctly through the Windows driver.

Calling for Help

If you have tried the suggestions in this manual and still need assistance, call the ENCAD dealer where you purchased your printer.

Before you call technical support for help, be sure that you have all of the following information available:

Printer Information

model
firmware revision (letter)
memory
serial number

Computer Information

model
operating system

Customer Technical Support

To resolve printer problems, use the suggestions provided in this guide. If you continue to have problems, you can get help from any of the following:

ENCAD Support Numbers and Websites

ENCAD Inc.
6059 Cornerstone Ct. West
San Diego, CA 92121-3734

Main Number	(858) 452-0882
Priority Support*	(900) 555-ENCAD
Toll-free Customer Support**	(877) ENCAD-TS
Customer Support	(858) 452-4350
Customer Support FAX	(858) 546-0659
Home Page	www.encad.com/
Warranty Cartridge Exchange	(858) 678-2373
Supplies Sales	(888) 747-9303
No. American Sales	(800) 45-ENCAD

ENCAD-France

Customer Support	011-33-1-305-10041
Customer Support FAX	011-33-1-305-17080

ENCAD-Germany

Customer Support	011-49-89-609-5540
Customer Support FAX	011-49-89-609-4192

ENCAD-Asia

Customer Support	011-852-2881-8969
Customer Support FAX	011-852-2881-0912